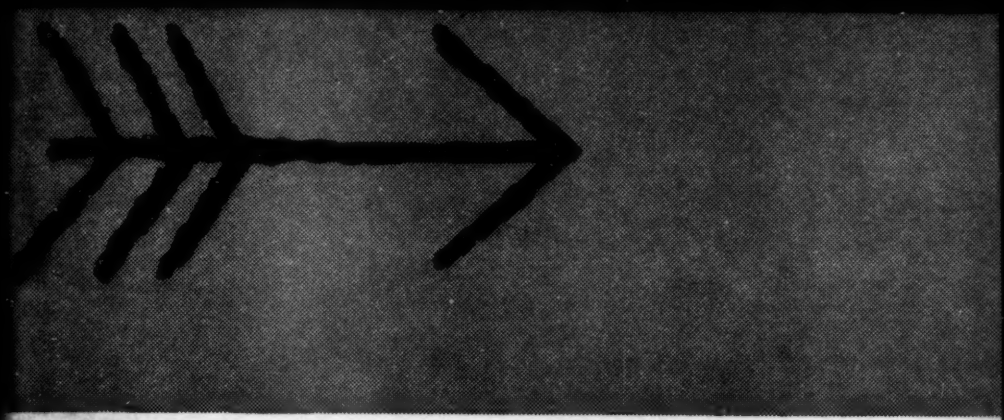
TRENDS IN EDUCATION



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Statistical Trends
Science as General Education
Reassessing the Classics
Raising the Leaving Age
Primary School Viewpoint
Teachers for Middle Schools
Technical Drawing

JANUARY 1972

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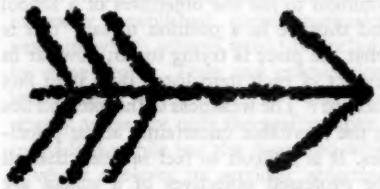

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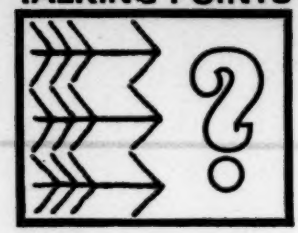
TALKING POINTS



By Question Master

What does a school achieve?

The effectiveness of an elementary school after the implementation of the Revised Code of 1862 was strictly measured by the attainment of its pupils in tests set and administered by HM Inspectors. No one could conceivably advocate returning to such a system or to anything like it. Nevertheless, it is myopic to ignore the fact that many people regard pupils' success in tests of attainment as some sort of measure of a school's performance. Every student of the Rise and Fall of the Secondary Modern School will be aware of this.

It can also be observed that many schools today, as in the past, have other more recondite objectives. They may seek to encapsulate a way of life with an implied distinction between life and learning. They may not go so far as to seek to equate their pupil's angle of vision with that which the school itself has chosen, but at least they aim to make explicit what they regard as the social and personal conditions of a good life. This leads to the concept of the *state* or *tone* of a school which may be taken very seriously by parents as well as teachers. Their concern is over the extent to which pupils absorb and subsequently reflect in their behaviour the values which the school upholds. Can this aspect of a school's performance also be subjected to measurement?

In America there have been frequent efforts to throw light on the question. Scientific ingenuity could no doubt devise tests by which a pupil's 'commitment quotient' could be established to put alongside his intelligence quotient. If the sum of the pupil's 'CQs' is high could we be sure of a good school? A more acceptable procedure seems to be the collection of institutional rather than personal data. It is not uncommon to list the objectives of a school and thus be in a position to say, 'this is what the place is trying to do; how far in respect of each item listed does it in fact succeed?' The weakness of this method lies in the inevitable uncertainty about priorities. It is difficult to feel satisfied that all the professed objectives of a school are equally important. The attainment of some objectives may be insufficient if those which one holds to be supremely important are *not* attained. Thus this type of approach to the measurement of a school's attainment may not get far—certainly not to the point of providing any guide for parents. In a closely argued book* Frank Musgrove observes that schools have multiple aims and that status or prestige attaches to those which have developed intrinsic goals as opposed to those whose goals are merely super-imposed by extrinsic social or academic pressures. He concludes a run-through of contemporary research findings on this issue with the opinion that schools are largely impotent in their efforts to realise their ambitions; their problem is a problem of power.

This may well be true but if all that a school can do is little, then the nature of that little becomes even more significant. There are, for instance, certain basic skills which parents, had they the time, could no doubt communicate to their children. In our society schools are expected to teach these skills and to build on them various structures of knowledge. As the mental abilities of children are diverse, it follows that teaching methods cannot be uniform. If diversity is wanted, then surely it is a mis-use of the psychologist to employ him on the measurement of certain abilities for the purpose of dividing children into groups in which they could all be taught alike.

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* *Patterns of Power and Authority in English Education* by Frank Musgrove.

It is incumbent upon educators to experiment with different modes of learning and on educational psychologists to explore different types of ability. Thus, it may eventually be possible to match a particular type of personality with a method of teaching suitable to it.

Our times have seen a loss of confidence in many established social institutions amongst which schools would be included by some people. Tests and examinations, increasingly sophisticated in character, openly assess not only the performance of individual pupils but the degree to which a school achieves its extrinsic objectives. Its intrinsic objectives remain shrouded in mystery. The basic skills and the knowledge systems are acceptable to all as demonstrable indicators of the school's purposes. The inculcation of attitudes and behaviour patterns is an activity governed by no simple rule, and its effectiveness seems extremely difficult to measure, either collectively or individually.

Yet how can a school abdicate from responsibility in this respect? Every social institution, every human community exerts an influence of some kind on those within its magnetic field. The staff of a school does what it can and what this is reflects the tradition within which its members work, the pressures exerted by society outside the school and by the resources, human and material, within. Can we go any further than this?

Perhaps one possible development could be emphasised though no doubt others will occur to our readers. In some primary schools where the day-to-day work is highly individualised the staff give much time to preparing profiles of individual children. This is becoming a practice in some secondary schools. Might not such records of all-round progress and development assume an importance at least equivalent to examination marks or intelligence quotients? If the school does regard progress towards the acquisition of attitudes and values as important it must surely find some means of demonstrating its conviction and assessing its achievement.

TEACHERS 1970

Several interesting trends in the numbers of teachers in service and in training are shown in *Statistics of Education 1970*, Vol. 4, to be published shortly by HMSO.

The number of teachers in full-time service in maintained and grant-aided schools and colleges increased by 18,000 between 1969 and 1970 to reach 404,000. This was a larger increase than in recent years. Of the total increase, 15,000 were in maintained primary and secondary schools.

Initial Training

The number of students on initial teacher training courses increased from 113,000 to 116,000 between 1969 and 1970. The proportion under 21 has fallen steadily in recent years.

The total number of students admitted to initial training courses increased slightly in 1970, nearly to the 1968 level: the number of admissions to post-graduate courses was about 1,500 higher than in 1968, with admissions to other courses about 1,600 lower.

There was a further slight increase, to about 64 per cent, in the proportion of students admitted to 'general' courses who had one or more A-levels.

Table 1 Students admitted to courses of initial training

	1968	1969			1970		
	Total	Men	Women	Total	Men	Women	Total
Type of course							
Postgraduate	6,057	3,079	3,409	6,488	3,452	4,110	7,562
Specialist[1]	2,306	1,256	1,006	2,262	1,392	1,063	2,455
General...	38,285	10,146	27,075	37,221	9,821	26,681	36,502
Total ...	46,648	14,481	31,490	45,971	14,665	31,854	46,519

[1] Including courses at art teacher training centres and colleges of education (technical)

Full-time service

The growth in the numbers of people being educated, both at school and beyond, during the past 20 years is reflected in the growth of the teaching force during the same period (see table two).

Table 2 Number of teachers

	1950	1955	1960	1965	1970
Maintained primary and secondary Schools[1]	207,668	237,876	267,551	283,950	327,245
Colleges of education	2,503	2,300	2,912	5,715	10,671
Further education establishments	7,339	11,555	19,640	35,401	49,590

[1] Including student teachers (formerly temporary assistant teachers).

Table 3 Percentage

	1950	1955	1960	1965	1970
Maintained primary and secondary schools ...	15·9	17·1	19·4	20·7	20·3
Colleges of education	55·5	54·0	57·0	52·1	56·0
Further education establishments	41·2	40·8	39·6	38·0	34·1

Table three shows, for the same period, the percentage of teachers who were graduates in these main sectors of education.

In maintained primary and secondary schools the increase in the proportion of graduates during the first decade was maintained during the second decade while the total numbers continued to increase.

In further education, the expansion of the teaching force by some 38·0 per cent during the period 1950 to 1965 was accompanied by a slight fall in the proportion of graduate teachers. The abrupt fall from 38·0 per cent graduates to 34·1 per cent between 1965 and 1970 is explained by transfer of the colleges of advanced technology from the further education sector of higher education to the university sector in 1965.

In colleges of education, graduate proportions were fairly steady during the 1950's, but the period 1960 to 1965, during which both student and teacher populations more than doubled, saw a falling away of the proportion of graduate teachers which recovered to some extent during the following five years in spite of continuing large growth in this sector.

Among the graduates in maintained primary and secondary schools there has been a fairly constant proportion of teachers whose subject of degree was in the science field but among these scientists the proportion of mathematicians has steadily declined from 12·9 per cent in 1959 (the earliest year for which separate figures are available) to 8·0 per cent in 1970.

Table 4 Percentages of graduate teachers in maintained primary and secondary schools

Years ended 31 March 1970 — *Percentage*

	1950	1955	1960	1965	1970
Mathematics and science... ...	28·1	28·1	26·6	27·1	30·0
Other subjects	71·9	71·9	73·4	72·9	70·0
Total ...	100·0	100·0	100·0	100·0	100·0

Somewhat similar trends are observed in further education and colleges of education.

Primary and Secondary Schools

For many years the staff of maintained primary and secondary schools has included some teachers who were unqualified and/or untrained. The Schools (Amendment) Regulations, 1968, laid down new rules restricting the employment of unqualified teaching staff. The Schools (Qualified Teachers) Regulations, 1969, provided for some of the existing unqualified teachers to be granted qualified teacher status on the basis of length of service; or the possession of a qualification; or both service and qualification. Each case was individually approved by the Secretary of State.

Since September 1968, there have been no new appointments of unqualified teachers, save in two categories: student teachers and instructors.

The 1968 Regulations further provided for a transition period of two years after which time unqualified teachers who had been in post on September 1, 1968, were either accepted as qualified teachers as described above or were not retained in service unless they fulfilled the conditions for employment as instructors.

The statistics in this volume relate, with few exceptions, to March 31, 1970, whereas the two year transition period did not end until August 31, 1970. But by March 1970 there would have been more student teachers and instructors in the schools than their predecessors, the temporary assistant teachers and occasional teachers.

Table five illustrates the changes that have taken place over the past few years.

Table 5 Numbers of unqualified teachers

	Former uncertificated and supplementary teachers granted qualified teacher status	Non-qualified teachers				
		Uncertificated and supplementary teachers	Instructors (occasional teachers)	Student teachers (temporary teachers)	Other non-qualified teachers	Total
1967–68	—	2,171	2,331	3,258	11	7,771
1968–69	1,322	535	1,588	2,399	—	4,522
1969–70	57	455	1,086	1,173	—	2,714

Entering and Leaving

Time-series tables on the subject of teacher movement continue to show gross figures of movement into and from the individual sectors. Table six shows rates of inflow into and outflow from full-time service for qualified teachers for the years 1967–68 to 1969–70. In each case, the flows in and out and net increases are expressed as percentages of the relevant number in service at the beginning of the year.

The net increase in the case of maintained primary and secondary schools grew each year.

Table 6 Percentages of qualified teachers

G = graduate N-G = non-graduate		In maintained primary and secondary schools			In colleges of education			In further education		
		G	N-G	Total	G	N-G	Total	G	N-G	Total
Inflow	1967–68 ...	13·6	13·3	13·3	21·6	19·3	20·6	15·6	13·4	14·0
	1968–69 ...	14·2	14·5	14·4	16·7	16·3	16·5	13·0	11·0	11·7
	1969–70 ...	15·3	14·7	14·8	11·0	12·3	11·6	11·5	9·9	10·5
Outflow	1967–68 ...	12·0	10·2	10·5	5·7	6·1	5·9	7·6	5·1	5·8
	1968–69 ...	12·0	10·1	10·5	5·8	6·0	5·9	7·7	4·9	5·9
	1969–70 ...	11·4	9·5	9·9	6·2	6·9	6·5	7·6	5·2	6·0
Net increase	1967–68 ...	1·6	3·1	2·8	16·0	13·1	14·7	8·0	8·3	8·2
	1968–69 ...	2·2	4·4	3·9	11·0	10·3	10·7	5·4	6·0	5·8
	1969–70 ...	3·9	5·2	4·9	4·8	5·4	5·1	3·9	4·8	4·5

Re-assessing the Classics and the Sciences

Can the classics be taught with less emphasis on the languages, can the sciences be taught with less emphasis on conceptual structures, and still make a useful contribution to the curriculum–in some ways perhaps a better contribution? The first two articles examine the traditional role and possible new roles for one of the oldest and one of the newest subject fields.

Classics without the languages?

JOHN GRAHAM

John Graham is a member of HM Inspectorate serving in the South Eastern Division.

In recent years the student of classics has been confronted by something of a paradox. On the one hand he derives encouragement and reassurance from the clear evidence of widespread interest in antiquity stimulated by the mass media and by the greater mobility enjoyed by the population as a whole. Educational cruises have given many children first-hand experience of the Parthenon at Athens, the Lion Gate at Mycenae and the theatre at Epidaurus, and if preparation and follow-up have been thorough, the experiences should have transcended the merely superficial. Through good translations into modern, readable English, many of them in cheap paper-backed editions, the literature has become more widely available and in this form much of it has sold well, and some of it very well. Greek and Roman drama has been produced on radio and television and in the commercial theatre and cinema; modern dramatists like Anouilh and composers like Britten have been attracted by classical themes.

On the other hand from the traditional school classics course as we have come to know it in the last quarter century these mainsprings of interest so often seem to have been absent. In the minds of most people the study of Classics still remains almost a synonym for the study of a classical language, usually Latin, concerning itself largely with the establishment of a sub-structure of grammar and syntax upon which only a few pupils ever raise any sort of edifice. Indeed even the detailed study of the literature by the minority who have been able to attempt it has been dominated by linguistic problems to such an extent that the experience for them has rarely amounted to anything which they recognise as an acquaintance with a significant literature. Time allowances have been finely calculated at the bare minimum necessary for able boys and girls to achieve an 'Ordinary' level pass in Latin at the end of an examination-dominated course. More than ever, the broadest values of a classical education have had to be held in trust for the sixth-former and the university student; yet of all those who have started Latin only about five per cent have survived the course long enough to enter into their inheritance. Of the remainder, the successful have turned to other branches of sixth-form study armed with an insurance policy against the requirements of certain faculties

in a diminishing number of universities; the rest have either failed to stand the pace and fallen frustrated by the wayside or have been defeated at the final post.

Recent Developments

This introduction might serve as a summary of the state of classical teaching at the beginning of the sixties, but it is now getting out of date since it takes no account of a great deal that has happened in the second half of the decade. During the last ten years the teacher of classics has been confronted with the task of adapting his material to the needs of the non-selective school, and the multiplicity of new patterns of educational organisation has had a catalytic effect upon the process, probably long overdue, of critical re-appraisal of the content and the values of the classics course in the years before the sixth form. The Cambridge School Classics Project, jointly sponsored by Nuffield and the Schools Council, has produced teaching material which commits itself so completely to the primacy of the skill of reading and comprehending Latin and to the absorption by the pupil of the flavour of Imperial Rome, that it deliberately omits the skill of translating from English into Latin in any shape or form. The examination boards have also reacted quickly, and six boards are now offering an alternative to composition at 'A' level and one board a similar alternative at 'O' level.

The evidence for the existence of widespread interest in the classical world is substantial and incontrovertible. But whereas in our traditional practice we have tended to regard that interest as something that grows out of the study of classical languages (a study which has often been mainly preoccupied in its early stages with a 'grounding' in grammar and syntax and the acquisition 'by heart' of lexical resources unrelated to any significant context) many schools are now showing a preference for stimulating direct interest in classical topics as the first objective. Once created, this interest is capable of development in a number of ways. It can of course of itself create the desire to learn a classical language, but if we contrive the motivation for language study in this way we must surely be as prepared to teach Greek as Latin, since at least as much present day interest (and arguably more) centres on Greece as on Rome. Secondly, it can prompt further study, perhaps in greater depth and detail, of classical topics without involving the pupil in the learning of a classical language. Thirdly, it can be the starting point for a more extended 'humanities' course of the sort described in the pamphlet '*Humanities and the young school leaver—an approach through classics*' (Schools Council). Fourthly it has possibilities as an element, and perhaps as the core, of an integrated course of study involving the linking of several aspects of the curriculum and handled by a group of teachers working together as a team. Finally, it can be a course which is complete in itself and initiates no further development. In practice however it seldom seems to come to a dead end.

These preliminary courses, sometimes known as foundation courses, are found in a number of forms. Frequently stories drawn from the wealth of ancient myth and legend, which have a particular appeal to children in the middle years of schooling, are used as a stimulus to imaginative and creative work extending over a wide range of media. In fact we ask the pupils to react to ancient mythology and legend much as the ancients themselves and their descendants down the ages

have reacted, through writing in poetry and prose, through dramatic representation, through painting and modelling and through other forms of creative activity. For example, one boys' comprehensive school, whose first year classical studies course is taken by a team which includes specialists in classics, music, drama, art and craft, have as part of their final term's work produced a twenty minute colour film with sound track and original dialogue, sets, costumes and score on the storming of Troy, and are now exploring the techniques of closed-circuit television. Other schools have produced spontaneous unscripted drama, and have recorded it on tape.

There is however growing evidence that myth and legend cannot by themselves sustain the interest in a course much beyond the first year of the secondary school (or its equivalent in the middle school) and the pupil begins to seek something more factual as the basis of his interest. It is at this stage that Rome begins to come into its own, since much more has come down to us about Roman life in all its aspects than about Greek, and many children can find sites and relics of the Roman presence within reasonable distance of their own homes. As the pupil progresses up the secondary school, he becomes interested in the many points of contact which he can make with the way of life found in ancient societies, with buildings both public and domestic, with dress and food and a thousand and one other details of everyday life. From ancient people in general his interest will often move to particular individuals, to achievements and ideals and ideas so that, with increasing maturity, he becomes ready to turn to the literature of the ancient people and to read for himself in translation the poetry, the drama, the history and the philosophy.

Non-linguistic Courses

During a survey of non-linguistic classics courses made by a group of HM Inspectors in the academic year 1968/69 and covering 100 secondary schools in various parts of the country, starting points for the courses were found in every year of the secondary school age range, though about a third began in the first year and a quarter in the sixth year. Of the courses leading to an external examination the majority were found to aim at the Ordinary level GCE in Greek literature in translation or in Greek and Roman literature in translation. But CSE has greatly extended the possible scope of courses for pupils aged 14–16, and five Boards offer Mode I examinations in classical studies, in each case the syllabus being so arranged that a knowledge of classical languages is not essential. A number of schools have devised their own Mode III syllabuses. Examples encountered during the survey included a two year course in archaeology and another on Roman Britain.

In recent months a proposal has been put forward for a non-linguistic classical studies course as an 'A' level subject in its own right. Its sponsors see it existing at sixth form level in association with non-linguistic classics in the lower and middle forms of the secondary school, with 'O' level 'classics in translation' courses and with university courses in classical civilisation. For the present most sixth form general classics courses, other than those directed at 'O' level, exist as an element in a scheme of general studies. Those covered in the survey varied in length between ten weeks and six terms, with one or two lessons a week as a usual time allowance. At this level, the

survey showed that the greatest danger to the effectiveness of the courses springs from the limiting circumstances under which they often take place. As in much other non-examination work in sixth forms (and indeed elsewhere), inadequacy of time and under-involvement of pupils in the matter of personal study and writing often engendered superficiality of treatment and a failure to penetrate far enough into a topic to make it seem worthwhile. In schools where something more than lip-service is paid to the value of general studies, the work in classics appeared to generate a much livelier enjoyment. The content of the courses at sixth form level covered by the survey ranges from a very broad outline approach—'A general survey of the ancient world from a historical and cultural angle'—to more detailed study of specific topics, such as mythology, art and architecture. Much of the work is supported by study of original literary sources in translations (usually in modern paper-back editions). Generally speaking, the emphasis in these courses tends to be much more heavily upon Greece than upon Rome.

Teachers and Equipment

The majority of the teachers encountered during the survey held degrees wholly or partly in classical languages and it is not perhaps entirely a coincidence that physical and material provision made for non-linguistic courses often tended to reflect the conditions under which classical languages have usually been taught. The general purpose teaching room with single desks, usually without water available and sometimes even without display board, has little to offer when the work is largely practical in character. For the same reason one double period is worth substantially more working time than two separate singles. It is easy, but not particularly helpful, to minimise the problems of adjustment which confront the traditionally-trained teacher of classical languages as he attempts to acquaint himself with the wide range of materials familiar to children from their primary school days, and as he strives to acquire the techniques of using them. In some schools teachers have shown that they possess sufficient versatility for the task and surprise even themselves. Elsewhere the problem is being met by enlisting exponents of other disciplines and forming a team with each member exploiting the possibilities of a classical theme in his own medium and using the resources and equipment of his own specialist room. In addition to the need for close consultation which must precede any such joint undertaking, it is perhaps worth also making the point that the classicist's regard for accuracy over detail and integrity of scholarship is one that deserves to be respected by his colleagues, even though they may be more preoccupied with the manner of expression than with the matter expressed.

From what has been said of the content of non-linguistic classics courses at all levels of the school, it is clear that, as much as any other aspect of the curriculum, they need learning resources, equipment and materials of all kinds to support them. There never was a time when the teacher of classics had at his disposal as wide a range of resources and he is well served by the agencies whose purpose is to keep him informed of what is available to him. The Joint Association of Classical Teachers has earned the gratitude of many teachers as a mine of information on new books and teaching aids. The Orbilian Society has

published a valuable and comprehensive catalogue of audio-visual aids, which has been augmented by the addition of three supplements. In publishing its own foundation course, the Cambridge School Classics Project has not only provided a ready-made methodology and material for non-linguistic work in the early years of the secondary school, or in the middle school, but has suggested some valuable resources for enriching and extending the scope of its own materials. The publishing industry itself has shown no signs of neglecting the classical world in its lists of new books, and a plentiful supply of titles is available to cater for every aspect of classical studies, ranging from adventure stories about historical and fictional Greeks and Romans written for children, to the more exalted forms of literary criticism.

Equally wide and stimulating is the coverage of classical topics afforded by radio and television. To give but two examples, the 'Heritage' programmes, prepared specially for schools in collaboration with the staff of the Cambridge School Classics Project, were first put out by ITN in 1969 and repeated in 1970; whilst for a wider public the BBC recently featured the Roman Palace at Fishbourne in Sussex as one of the programmes in its 'AVN Series'.

Reference was made at the beginning of this article to the very limited interpretation often put upon the term 'Classics'. The implications of the wider interpretation here described are far-reaching. For example the claims of classics for a place in the curriculum of middle schools have often been overlooked because the term has been equated only with the study of classical languages. If taken in the wider sense, classics has generated much interest and activity among pupils in those age groups which are, and will be, accommodated in middle schools. Again, classics has traditionally been associated with mainly verbal skills and has therefore made little contact with children of limited verbal ability. But with the rich resources of classical myth and legend and their exploitation in imaginative activity of a non-verbal character there may be much of value here in the education of the less able child. Again there are implications in the field of teacher training, both at the pre-professional stage and in in-service training; in the university departments and in the colleges of education, as well as in teachers' centres and professional working parties.

Science as general education

DAVID LAYTON

David Layton is deputy head of the Department of Education at the University of Leeds.

Although a detailed natural history of the secondary school curriculum has still to be written, it is possible to discern three stages in the development of school subjects. In the first, the callow intruder stakes a place in the time-table, justifying its presence on grounds such as pertinence and utility. During this stage learners are attracted to the subject because of its bearing on matters of concern to them. The teachers are rarely trained specialists, but bring the missionary enthusiasm of pioneers to their task. The dominating criterion for the selection of subject matter is relevance to the needs and interests of the learners.

In the second stage, a tradition of scholarly work in the subject is emerging along with a corps of trained specialists from which teachers may be recruited. Students are still attracted to the study, but as much by its reputation and growing academic status as by its relevance to their own problems and concerns. The internal logic and discipline of the subject is becoming increasingly influential in the selection and organisation of subject matter.

The third stage is characterised by a further advance along the road of specialisation and expertise. The teachers now constitute a professional body with established rules and values. The selection of subject matter is determined in large measure by the judgments and practices of the specialist scholars who lead inquiries in the field. Students are initiated into a tradition, their attitudes approaching passivity and resignation, a prelude to disenchantment.

Science, which in many schools entered the curriculum because it represented useful knowledge, would seem to have achieved the third stage of development in recent years. In 1966 the Interim Swann Report found it necessary to chide the schools for the part they were playing in fostering a belief that academic research was the only respectable outcome of a scientific education, a view which might have mattered less if enthusiasm had remained. The present position, however, is that despite the impressive advances of modern research, and, although, in the mortified words of the Dainton Report, 'nothing justifies a movement away from these subjects in schools', sixth formers have revealed something less than zeal for scientific studies. On this point there is small comfort to be derived from recent stories of a reduction in the swing from science if, as seems likely, all that is happening is an adjustment of subject choice to the economics of the higher education market place.

Science, like the doyen of the secondary school curriculum—classics, might be seen as a potentially humane study whose value as an instrument of general education in schools has, until comparatively recently, been diminishing. The applications of scientific knowledge to the welfare of man and the characteristics of science as a mode of intellectual inquiry have been progressively 'overlaid by the weight of formal exercise and historical accretions'. The study of the increasingly important interactions between science, technology and society has found little place in the prevailing schemes. Whereas traditional

practices have had something to commend them as a preparation for more advanced studies within the subjects, they have provided an inadequate basis for the education of all but future professional scholars. The interest and comprehension of the laity, hallmarks of a humane study, have been lost in the pursuit of the narrower objectives of technical expertise.

New Objectives

Science has now, like classics, to re-establish itself as an effective instrument of general education. How is it meeting this challenge? To what extent has the breadth and humanity advocated by the Dainton Report been infused into the school science curriculum?

Viewed in this light, the Nuffield O-level biology, chemistry and physics projects, far from ushering in a significant period of curriculum reform, are more properly seen as signalling the end of an era. They round off just over a century of science education in which the emphasis has been placed in varying degrees on the achievement of two broad objectives—first, an understanding of the conceptual structures of science, science as a body of knowledge, and second, an understanding of the procedures of science, science as a process. Present day science educators have no monopoly on these objectives which date from the origins of school science teaching. Certainly, as long ago as the 1840s Tyndall and Frankland were teaching what we would today codify as 'Nuffield Science' at Queenwood College in Hampshire. The balance between the two objectives has varied from time to time, but the emphasis has been unwaveringly on an understanding of science in its internal disciplinary aspects, its vocabulary, grammar, syntax and literature. An analogy might be drawn with the teaching of classics in the nineteenth century. What school science education has so far failed to establish as a worthwhile objective is the importance of an understanding of science in its external relations, of the nature of the science-society interface, the analogue of the goal of the non-linguistic 'civilization' courses being developed in the field of classics. It needs to be asked whether this is not now desirable and whether there should not be a broadening of the scope of the objectives of school science teaching to include as a third category, an understanding of science in its external relations with technology and society.

To argue that the present objectives of school science education are too narrow, too dominated by an inward view of science, is not to impugn the judgment of previous science educators. It is merely to suggest that the answer to the problem of 'which objectives?' is time dependent. In the past there have unquestionably been situations when an over-riding emphasis on the conclusions of science was entirely appropriate. The scale of the scientific enterprise, on a national perspective, was limited. We were still at the stage of what Derek Price has termed 'little science'. Science and the state had not begun to interact in any significant way. It is only just over a hundred years since the first government grant for scientific research was awarded—£1,000 to be administered by the Royal Society; and the national grant remained at this level for several decades.

In such a situation, and given the social and educational context of the nineteenth century, it is not surprising that the *conclusions* of science featured strongly whenever science was included in the school curriculum. It was more important for the future citizen to know the elements of the germ theory of disease, the basic facts of human

physiology, the mechanics of levers and pulleys, the elementary chemistry of digestion, the action of washing soda on water and similar matters rather than engage in studies of the interrelations of science, technology and society. The emphasis was quite correctly placed on the first, and to some extent, the second, of the three categories of objectives.

Today the social environment of science has been transformed, just as science itself has grown from 'little' to 'big science'. Science and technology are now inextricably interwoven into the economic, political and ethical problems of our time. Also, as a direct consequence of its own growth, science has become increasingly dependent on state patronage, with a demand far in excess of the resources available. In consequence, and in a short space of years, science has moved into a position where it is a public activity of major importance. Decisions have to be taken in planning for the national development of science and technology, and because of their significance these decisions need to be taken publicly and with social consent. They entail a scientifically literate population. Science now has to be as directly accountable to its supporting public as any other activity of similar social influence. From being an instrument of public policy—an agent which was available for use in the achievement of agreed social objectives—science has now become itself an object of public policy.

We might caricature the differences between 'little science' and 'big science' by saying that in the days of 'little science' the practitioner was more often than not a distinguished amateur, as opposed to the ambitious professional in today's 'big science'. The lone scientific researcher has now virtually disappeared and been replaced by the multidisciplinary team. 'Little science' was associated with the string and sealing-wax laboratory; 'big science' is characterised by the heavily funded 'large machine' establishment. Finally, 'little science' was socially and politically irrelevant—indeed the image of 'pure science'—with dedicated individuals working in innocence and isolation towards the uncovering of the laws of nature—may have contributed significantly to its social respectability and consequent growth. 'Big science' is socially and politically engaged—and, some might add, morally tarnished also.

Science and Social Policy

The transition from 'little science' to 'big science' has occurred over the last fifty years or so. The time scale associated with the problems arising from the advent of 'big science' is much shorter; we are dealing now with events of the last decade. The point was nicely made by Alexander King, the Director-General for Scientific Affairs of OECD, in a recent lecture. He reminded his listeners that when the first ministerial meeting on science was organised by OECD in 1963 less than a third of the 22 countries involved could muster a minister for science. By 1965, when the second meeting was held, most of the participating countries were able to send a minister who had a special responsibility for his country's science policy. In 1968, at the third meeting, the science ministers appeared in strength, accompanied in many cases by their economic colleagues. Their company at future meetings provides an interesting field for speculation.

It is a characteristic of problems in the field of science policy—and also of the problems which occupy so many of the intelligent younger generation today—that a science component is in intricate relationship with considerations of a quite different intellectual order. This is true

whether we take an exciting topical issue such as pollution, genetic engineering, population control or space research, or whether we consider something more mundane such as our national policy for fuel or water supplies.

One position which could be adopted is to accept that problems of this type are so complex that the ordinary citizen can never be expected to comprehend them and certainly can never be expected to evaluate solutions which are proposed by experts. This is a defensible position, but a counsel of despair which abandons decision-making almost entirely to the specialists and reduces democracy to some sort of quinquennial charade. Even the optimists see it as inevitable, in the limit, that policy decisions will need to be taken by specialist groups and committees, but they would argue that these groups should be exposed to a wide range of pressure groups speaking for those likely to be affected by the decisions. Supreme optimists would even have government finance available to such groups in order to ensure the widest possible representation of viewpoints. Government aided or not, the emergence of such pressure groups presupposes a population which is scientifically and technologically literate. Furthermore, the nature of the problems exposes the weakness of a concept of scientific literacy which does not require its recipients to take into consideration the social, economic, political and ethical relations of science. On such a yardstick, the original Nuffield school science projects—like the American PSSC, CBA and CHEM study projects*—were inadequate for the times, being essentially discipline biased and inward looking. The applications of science and its social nexus were ignored. In so far as these courses were concerned to put children in the position of a scientific inquirer after new knowledge, the paradigm was that of the pure scientist, supremely oblivious to the applications of his work.

Implications for the Curriculum

Just as classicists have questioned the extent to which a knowledge of the languages and literature of Greece and Rome is necessary for the achievement of an understanding of the influence of classical on European civilization, so scientists might ask a similar question. 'How much knowledge of the procedures and conclusions of the various sciences is necessary in order to achieve an understanding of the relations of science to technology and society?' It is probably true to say that an intelligent appreciation of the arguments associated with an issue such as our national fuel policy requires a relatively modest background of scientific knowledge, although it requires, in addition, knowledge from other fields such as economics and geography. It does not follow from this that we require the direct analogue of the non-linguistic or low-level linguistic classical studies courses.

Is it too early to anticipate the shape of an elementary course of 'science studies' or to attempt to inject into the secondary school curriculum a course component begotten from, say, the Science Greats course at Manchester or the work of the Science Studies Unit at Edinburgh? As a proximate target it might be more realistic to envisage the fuller development of selected topics within existing science courses with the object of illuminating the nature of the interrelations between science, technology and society. A series of

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* *Physical Sciences Study Committee; Chemical Bond Approach; Chemical Education Materials Study.*

excursions in depth, involving the periodic broadening of the objectives of science education might serve as effectively as a special course and might be easier to implement. In this way old topics might come alive in the service of new ends. For example, although no one today would claim that a knowledge of the Bessemer process for steel making is an indispensable piece of intellectual equipment for a citizen of the late 20th century, a study of the work of Bessemer could be made to have considerable value. The availability of cheap steel revolutionised transport, civil engineering and the landscape of cities. It also contributed to the attainment of universal literacy by dramatically reducing the cost of steel pens and bringing them within the reach of all. But apart from these striking, if obvious, social consequences, the case study throws light on the relations of science and technology (different traditions which interacted only weakly in the Bessemer episode) and on their different norms and practices. Bessemer, for example, was a typical technologist in being an ardent patentee, in contrast to the typical scientist who publishes immediately for all to read without restriction. Bessemer's objective was a marketable product which could be sold for gain, as opposed to the goal of knowledge for its own sake. He depended little on existing scientific and metallurgical knowledge, although his invention threw up problems which provoked scientific inquiry. Both simultaneous and accidental discovery were involved, with implications for the view we take of the nature of the process of discovery or invention. Having made his discovery, Bessemer's road to commercial profitability was long and fraught with difficulties. He started serious work on a process for the manufacture of cheap steel at the end of 1854: his celebrated paper at the Cheltenham meeting of the British Association, announcing his discovery, was read in August 1856. Yet it was not until 1863 that he achieved his first year of comfortable profit on the production of steel.

Bessemer would unquestionably have agreed with the findings of the Zuckerman Report on *Technological Innovation in Britain* (HMSO, 1968) that a new technological idea 'achieves commercial success only when it is nurtured into the final phase of marketable products which the consumer wants and the producer can make at a profit; and that the most difficult and complex problems in the process of technological innovation generally lie in this final phase.' The myth that higher research-intensiveness will provide the solution to our economic problems could not be sustained by the study. Finally, an examination of Bessemer's work raises a number of moral issues for consideration, not least that the original motivation was the search for a suitable material from which to manufacture ordnance capable of firing a new design of elongated, rotating shell which Bessemer had invented. It is difficult to think of another 'mission-orientated' research from which the 'spin-off' has been so rich in benefits to mankind.

Carefully chosen and well wrought case studies, supported by suitable teaching materials, could contribute to the profitable broadening of the objectives of the school science curriculum. No doubt in time they would follow the path of other school studies and begin to exhibit the characteristics of an established department of knowledge, with practitioners afflicted by professional role-consciousness and concerned to conserve a status associated with a specialised field. But for a time, at least, the science curriculum might appear less of a repository for inert ideas and cognitive objectives might be achieved without the simultaneous fostering of regrettable affective ones.

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Raising the Leaving Age

Schools have been preparing in their own way, and for some years, for the raising of the school leaving age to sixteen in 1972/73. Trends will report from time to time experiences likely to be helpful in pointing the way ahead. In this issue we publish an interview with the headmaster of a Yorkshire co-educational school and short notes on one mixed and three single sex schools in Bedfordshire, Essex and Devon. All five schools cater for the 11–16 age range.

Captives into collaborators*

Arthur Young, headmaster of Northcliffe High School, Conisbrough.

Northcliffe High School is an 11–16 unstreamed non-selective school of just over 1,000 in a small mining town in the West Riding of Yorkshire. The school is part of a reorganization that includes a sixth form college. The town is close to a larger centre—Doncaster—which provides work for some of the parents of children in the school, but most of the fathers are miners in the nearby colliery. The school is housed in 1929 buildings around three grassed courtyards. One of these courtyards now houses a small zoo, another stores the school canoes, the third is a play area. The school has three Land Rovers for expeditions. The headmaster, Arthur G. Young has been at the school for twelve years.

TRENDS: *The debate about whether the school leaving age should be raised at the end of this year is, surprisingly, still going on, but that is not what we want to talk about because we know you are committed one-hundred per cent to the idea and it isn't something you have doubts about.*

A.G.Y.: That's right. I think when the date was postponed before we were all secretly glad, even if we didn't say so. Now almost everyone in my position has faced up to the coming change and has plans fairly well advanced for dealing with the education of this group. This isn't to say we don't have doubts about some of the things we'll be doing with them.

TRENDS: *Would you agree we haven't got to think about a group called 'the leavers' but the education of everyone from the age of eleven to the age of sixteen?*

A.G.Y.: That's absolutely vital. We cannot just go on with the same curriculum, merely extending it by a year. Nor can we just stick everyone into CSE courses and hope for the best. Make no mistake about it the group we have in mind shows a very marked decline of interest in schools and everything they stand for. Here I've 35 per cent staying on voluntarily—

* This article is an edited version of a tape-recorded discussion between Martyn Clémans and Arthur Young.

this is not as high as in the south of England but is about average for this kind of area. So it means I will have a very large percentage of what is now my third year who will still be here after, in a sense, they might otherwise have left. They know they will be staying on, we started what you might call propaganda about this a long time ago, almost as soon as they came here.

TRENDS: *And you'll be taking practical steps in curriculum reform?*

A.G.Y.: These steps were begun a long time ago, when the school was re-organised. We've got block time-tabling and team teaching operating in humanities up as far as the third form, and the leavers of the fourth year. Next year it will go into the whole fourth year and through into the fifth year for examination purposes. We've submitted syllabuses both to the GCE and CSE Boards appealing for them to assess the candidates together and so unify our examination course. They will thus all work the same syllabus and the two boards can sort out the results and which candidates should have GCE certificates and which CSE. This seems absolutely logical to us. We are supposed to wait patiently until about 1975 for it to happen, but we think the time is right for that development now. Two separate courses in a school like this can only have a divisive effect. It would mean the humanities being separately assessed for component parts, history, geography, RE and so on.

TRENDS: *One headmaster has said of examinations 'working class pupils are sickened with and driven out of school by a one-dimensional competitive concept of achievement and success that is an exact reflection of acquisitive middle-class values'.*

A.G.Y.: That's all very well and no doubt it's a justifiable view in some ways, but our examinations are continuous assessments and therefore not so very arduous. Not that I think examinations are the answer, I don't. And after all it has always been the non-examination takers who question the value of the curriculum most. If you are taking examinations you see them as first steps—or more likely hurdles—on the road to a career. But if you aren't looking at the school work in this long-term way I can quite understand why much of what we have done in the past seems absolutely pointless. What value, for instance, can knowing the date of the Battle of Waterloo be to a girl who is going to work in a hairdressers? There are other things much more useful to her. We need to make the work here as practical as possible for the girls as well as the boys. This is why the extensions to the school that I hope we are going to get will be very different from the kind of thing we've had before.

TRENDS: *Will the accommodation you have be adequate when the leaving age is raised?*

A.G.Y.: No, far from it. We will certainly need an extension and we've drawn outline plans for what I call a 'Newsom Barn' because it embodies a lot of the ideas that the Newsom report advocated.

It will be as unlike our present science labs. and handicraft department as anything could be. It will be a kind of combined

factory-studio, open space. It will be a factory in the sense that the tasks will be practical, producing finished articles for use, possibly on a commission and repayment basis. We could make furniture, educational toys, things like that. I anticipate opposition from unions and others to this idea, but you see, if we don't look at handicraft in this way what is the future? Copper and wood are now so expensive that we cannot use them in the way we used to do in my own school days. Also I think for some of the group we are talking about, making things is quite useless unless they have some utilitarian purpose. For those who can comprehend abstraction there will be the studio side of things; sculpture, wood-carving, pottery would fit in here.

TRENDS: *This is obviously in the future. What present projects have been started that will carry over into the new situation?*

A.G.Y.: We've a number of conservancy projects going. They're a good way of combining practice and theory and in which we can interest all ability groups. In south Yorkshire there is so much to be done. Some community ventures run out of old ladies who need help but we aren't likely to run out of places that could be improved and cultivated in an area like this is. Don't think by that I'm disparaging community service. We have some girls working with pre-school groups in the nearby EPA area here—it isn't just child-minding—the research workers involved the girls in discussion of what they are doing. We also send girls out to some of the infant schools a couple of days a week and our girls have served the local Meals-on-Wheels for the past four years.

TRENDS: *What about work experience?*

A.G.Y.: I've no work experience scheme running. I'm not very well placed with the kind of employment we have in the town. I'm not heart and soul for that idea anyway: work experience can be very disillusioning to youngsters you know, and they learn a lot of what one might call anti-social behaviour that way, that's best avoided if you can.

TRENDS: *Do you think in the future we will have to take steps to avoid making those youngsters who are taking examinations feel left out of all the—on the face of it—more interesting practical schemes the others are involved in?*

A.G.Y.: Yes. Very much so. The humanities project of the Schools Council helps here. We've our own humanities teaching scheme going but we do use the kits Mr. Stenhouse has developed quite a bit. We use the resource material but adapt it in our own way. This is, I know, contrary to what some people want schools to do but there it is—we do what works and reject what doesn't.

TRENDS: *The Crowther report said 'There is no escaping the fact that the below average child makes above average demands on the educational system.' What do you think will be needed in terms of resources and teacher time to cope with our future problems?*

A.G.Y.: The simple answer is a better teaching ratio if we are going to avoid some of the trauma. Young teachers are going to find diffi-

culties which the more experienced person won't have. Sustaining the interest of the older, non-academic boy or girl is very difficult. Small groups will be needed. Team teaching helps a lot but for every small group you obviously must have others that are larger. We're going to have to reverse the whole order of things. Sir Alec Clegg makes the point that we've had our priorities all wrong in the past. We've always given the most resources and the best staffing ratio to the most gifted when what we should have done was the opposite. The gifted children will get on quite happily and successfully if taught in large groups and even the extensive use of audio-visual aids like television.

TRENDS: *We notice you said even, was that intentional?*

A.G.Y.: Yes, well, that's a criticism isn't it, and shows my prejudices, shared of course by many teachers. We've got to come to terms with both aids and aides but we're a long way from doing it yet in most of our secondary schools. We have so many other things to come to terms with. Many teachers want to teach the most able because the rewards are intellectual. There are dedicated ones who think differently but these are all too rare. We need to increase the financial rewards to encourage the best teachers to want to teach the least able. It comes down in my opinion to status. Teaching the intelligent at the moment has high status. Teaching the slow, low. You raise someone's status, in our society, by raising his take-home pay. But pay isn't the whole answer, you've got to improve the conditions. The worst schools are still in the worst areas.

TRENDS: *You've adopted the third session idea here haven't you?*

A.G.Y.: We began with that about twelve years ago. The programme is altered every term, and there isn't the same need for this in the summer term as the two winter terms. On popular nights we have up to 250 children back here. It began with the voluntary 'homework in school' idea and developed from that. The scheme is mostly run by the younger and the older staff. Teachers in the middle age-range have family commitments of their own and cannot be expected to be active in this even if they are paid. About two-thirds of the staff now get paid either as assistant youth leaders or as further education teachers. None were paid at the beginning. They do more classes than they are strictly paid for—as much as one for one in some cases. This isn't a youth club, don't get that idea. They have to join a class which runs up to eight o'clock, or else do their homework. After eight they can turn on the record player, sit around and just drink coffee and talk.

TRENDS: *The plans you mentioned for an extension of accommodation took into account practical work, what about the rest of the school?*

A.G.Y.: In a sense we've been raising the school leaving age for the past four years because we've had one of the RSLA prototype units designed by the DES architects on test here for that length of time.* We use it as our fifth-form unit at the

* Interested readers should see Building Bulletin No. 32.

moment. We won't really be using it for the purpose it was designed for even when the leaving age is raised because, as I said, our accommodation is all taken up and we will require something extra. But, you know, I would like to see this kind of unit provided for groups right down the school because of the social amenities it has. It isn't only sixteen year olds who benefit from a free approach. Twelve and thirteen year olds are much more sophisticated now; it isn't good enough to turn them out into the playground on a wet Monday morning for ten minutes' break and expect to get their total co-operation afterwards.

TRENDS: *What does one do to stimulate their interest and get co-operation, given the kinds of buildings you have here?*

A.G.Y.: I believe giving them long breaks and letting them remain inside the school if they want to without special dispensation. During breaks here they are able to play their own records and drink coffee in a civilised fashion and have time to enjoy both. Our breaks are 25 minutes and it gives them time to relax. That's what we want them to do. They are more receptive as a result. The fourth year uses the hall, which, I'm glad to say is small—too small for me to be able to hold assemblies in—that's the best I can do for them at the moment; the fifth year uses the RSLA unit.

TRENDS: *You extend this free approach fairly widely into areas in which schools often seek to repress don't you?*

A.G.Y.: If you mean because I've given up a school uniform, then yes. Young people ought to be allowed to express their personality through their clothes, and I don't see why we should stop this happening. The boys can wear their hair long, the girls can wear jeans and jewellery.

TRENDS: *Do you attempt to guide their tastes and ideas in this kind of thing?*

A.G.Y.: Teachers are not arbiters of fashion. Most of us aren't qualified to be. Carnaby Street and the Kings Road are the arbiters; and even though they're a long way from here we feel their pressure. Many people would say we're taking the easy way out on this but I don't agree with that. I don't see why we should ever expect to make a child do something we wouldn't make an adult do. Society is advancing and so standards and relationships are changing. We've abolished physical punishment for adult offenders against society and we should also totally abolish it in schools.

TRENDS: *What punishments have you substituted here?*

A.G.Y.: I don't think there are any. You can't effectively have detention if you run a third session can you—it would defeat the whole idea of the thing being voluntary. But you know, the more rules you have the more punishments you need. Get rid of senseless school rules and you reduce almost to vanishing point the need to punish. Take lateness. We used to punish like mad for lateness once, with prefects acting as vigilants to spy out those creeping in. Nothing was changed by it. No good was done. What did happen was that some who might

have come to school stayed away altogether and played truant.

TRENDS: *What about truancy, especially in connection with raising the leaving age?*

A.G.Y.: That I admit is going to be a real problem, there isn't any getting away from it. I have about a 90 per cent attendance here, sometimes it rises to 92 and I'm pleased. It seldom goes over that. The interesting thing is when you break down the figures by year-groups. The graph rises from practically no absences in the first two years to a large number in the fourth year. Extend the graph exponentially and the line disappears almost from sight! Truancy in this kind of area is a social problem. We tend even now to see truancy in Huckleberry Finn terms: you know, the boy with the fishing rod sitting on the river bank. It's seldom that. More often it's mum wanting a baby-minder or dad an errand boy.

TRENDS: *Is this indicative of your parents' attitudes to the school?*

A.G.Y.: My parents are not anti-school, but they aren't very pro—either. They got on without education and can't quite see why their kids need it. But the parents here are much less certain of what the future holds in the way of employment now. Coal-mining isn't an expanding industry and whereas at one time they would not have even thought about other possibilities for their own children they are now forced to do so.

TRENDS: *Because of the nature of your school you presumably won't be thinking about linked courses with further education in the way other areas are doing?*

A.G.Y.: Further education to us means sending students to the sixth form college at Mexborough. We also have links with Dartington Hall in Devon where some of my people go on a scholarship-basis, to the sixth form. We also run three courses each term for the lower forms on an exchange basis with Dartington. I'm also very much in favour of having a residential annexe attached to the school. I think this would benefit some of our children. It would enable us to help them much more than we can do at the moment. These days you know, guidance from adults has to be unobtrusive.

Notes on Four Schools*

Chief among the suggestions made in the recent circulars† was that RSLA 'ought not to consist simply of tacking on an 'extra year' but should involve a review of the curriculum as a whole, so that the years up to 16 represent a coherent educational experience for all secondary pupils'.

The circulars pose the problem of reconciling a reluctant minority to an additional year of compulsory education and the need to provide a goal for the many pupils who find courses geared to preparation for examinations neither attractive nor suitable. 'There will inevitably be many 15 to 16 year olds who will be very conscious of the contrast between their increasing physical maturity and their interest in life outside school and their continued schoolboy or schoolgirl status'.

They go on to suggest the need for schools to develop 'courses of an outward looking kind which help pupils in these age groups to see the relevance to their future life of what they do at school'.

Two of the schools visited were in Devon and the others in Bedfordshire and Essex. The visits were made to seek to identify some of the ways in which the suggestions in the circulars are being or could be put into practice. There seem to be five areas of activity: the school as a community within which consultation takes place and pupils' views are considered; the school as an agency to meet individual and small group needs; relations between home and school; curriculum provision; and resources outside and inside school.

No one school showed equal strength on all five fronts nor necessarily followed this order of priority. There were the natural differences in interpretation and methods arising from the particular needs of the school and its locality, the philosophy of the head, the individual talents and interests of the staff and how these were used, and the interests and capacities of the pupils. It should also be added that in these schools, as in most, a more empirical approach prevails than the emergence of a 'five areas' pattern implies. The introduction of a scheme of options, for example, leads to a strengthening of home/school relations as the options are explained. The needs of a particular group of girls on a leavers' course may coincide with the availability and interest of 'outside' individuals prepared to visit the school and help the girls. The school's counselling service can be strengthened by such help.

The following summaries demonstrate such evolutionary processes and show how four schools arrive through individual practices at general educational objectives.

A county secondary girls' school with 500 pupils within an age range of 11-16 and a staff of 25 (*School A*)

The girls assist with many school activities. The school council comprises the head girl, deputy head girl, heads of the school com-

* These notes were prepared by Miss M. Olds of the Department of Education and Science.

† Circular No. 8/71 Department of Education and Science. Circular No. 139/71 Welsh Office.

mittees and head prefect. It meets once a month usually at the same time as the monthly staff meeting. Subjects discussed range over many aspects of school life, particularly those relating to the duties of the various committees, the planning of social events and the welfare of pupils. Minutes are kept and these, together with any recommendations, are subsequently discussed with the headmistress and staff.

A series of committees has also been established drawn from the fourth and fifth year—most of whom are involved. Girls volunteer to stand for election by school and staff. During the autumn term the weight of responsibility is carried by the fifth year pupils but as the school year progresses, the fourth years take over.

Committees organise the dining room, sales of biscuits and crisps; the appearance of the school, including flower arrangements and display (working with the art department); and welfare. The welfare committee's concern is with the care of all pupils—helping new girls to settle down, helping those with problems, caring for those who are sick or injured, and giving assistance in a variety of other ways.

All musical activities within the school are run by the music committee which also arranges an annual music festival. Other committees run the library, make arrangements for games and organise movement about the school. In addition, each form has its own captain and form prefect attached. This participation in running the school is popular with the girls and the responsibility is welcomed.

A house system is operated which forms the basis for pastoral care throughout the school and for teaching groups in the first three years. Counselling by a medical officer begins in the second year when sex education is introduced and talks given on smoking, drugs, VD etc. The medical officer may be consulted by appointment and works with individuals or groups. The school also has links with the child guidance clinic.

Participation and consultation is further encouraged by a system of elective subjects. On Thursday afternoon girls may choose to follow a course in arts and craft, drama, dance or home economics.

These 'electives' form part of a scheme of options whereby pupils, in consultation with the staff, careers officer and parents, select between seven and nine subjects—one from each group of subjects which have been devised to give flexibility and a balanced course. The options which vary a little from year to year are as follows for 1971–72:

Group 1 needlework, or art & craft or domestic science
Group 2 domestic science or biology CSE 1
Group 3 English 'O' level or English CSE 1 or English CSE 2
Group 4 chemistry 'O' level or geography 'O' level or music 'O' level or history CSE 1
Group 5 French 'O' level or biology 'O' level or mathematics CSE 2 or mathematics CSE 3
Group 6 social studies 2 or typing 1 } social studies work course
Group 7 social studies 1 or typing 2 }
Group 8 history 'O' level or religious education 'O' level or social economics or geography CSE 1
Group 9 mathematics 'O' level or mathematics CSE 1 or biology 2 or religious education CSE 1
Group 10 Electives
PE is taken by all girls.

Careers guidance at present consists of one period a week in the third and fourth years while the careers teacher is available for four periods a week for consultation by fifth year pupils. The local Careers Officer visits the school to talk to pupils in the third, fourth and fifth years.

The scheme of options now evolved aims to provide breadth and flexibility. It is a two-year course which all girls enter at the beginning of their fourth year having selected the subjects they wish to study. The course continues the traditions and emphasis of the first three years and relates these to the demands of external examinations.

The general unstreaming of the school began in 1965 by allocating the new intake of pupils to unstreamed house groups for pastoral and teaching purposes. This pattern was continued in subsequent years and led to the gradual unstreaming of the first three years. Three years ago, pupils in the fourth and fifth year could choose mainly a GCE, CSE, RSA or Leavers' Course. It was possible to follow a GCE course, study for CSE and/or RSA and, perhaps, also a non-examination subject. But this depended on individual timetables. Pupils selected courses at the end of the third year but were free to change courses later if they wished. However, the difficulties of making such changes are obvious—'catching up' lost ground is not easy.

Today's series of options means that 'O' level and two CSE (fast and moderate) courses can be accommodated as well as a course of craft, humanities and science. The neighbouring FE College has been approached and school and college departments of sociology, home economics and commerce are working together on the provision of a combined course for one morning a week at the college which may be developed as a CSE Mode 3.

Integrated courses have been started in the first year and the school has adopted the Goldsmiths' Inter-Disciplinary Enquiry method. In the second year the course becomes more subject orientated but inter-disciplinary links are emphasised. The third year, the last of the common course, introduces social studies, looks at the community, local government and asks pupils to think of the national community. The series of outside visits begun in the first year continues through the remaining years.

The school works closely with the nearby FE College. Arrangements have been made for girls to follow metalwork and woodwork courses at the college as the school lacks the necessary staff and equipment. Links with the college also help girls to taste courses they may follow part-time or full-time after they have left school.

In 1957 (before this the school was mixed) just two girls completed a fifth year. The school now has a voluntary staying on rate of 81 per cent. It does not anticipate many problems when RSLA is introduced.

A county secondary mixed school with 335 pupils within an age range of 11-16 and a staff of 16 (*School B*)

The headmaster lays great emphasis on establishing good personal relations between staff, pupils and parents. He interviews all parents and new entrants in the summer term preceding September entry—having sent them an invitation and brochure introducing the school, its aims and standards. Such interviews with parents and child provide him with an opportunity go get to know parents at the outset and establish close co-operation with the home. With a small school, he is able to know each child personally. Follow-up meetings between

staff and parents take place at least three times a year and correspondence with individual parents involve the headmaster in some 800 letters a year.

He believes that the first three years in the school are vital to give confidence and encouragement and prevent attitudes which reject school developing during the fourth and fifth year. His pupils are not so sophisticated as town children and they respond well to the sincerity of his approach and that of his staff. Emphasis is laid on self-discipline and high standards in all that is done. 'If we recognise the need for people to have value as people and if we provide opportunities, particularly in the fourth year, for pupils to shine we do not create "RSLA problems" '.

There is a keen house system and inter-house competitions. In athletics pupils can earn points not by competing against other pupils but by competing against a minimum standard. Each of the three houses holds its own assembly once a week and undertakes work for a charity. Members of a house who stay for lunch eat together and the staff run clubs during lunchtime or after school.

The first three years are spent on a general course of study with emphasis on topic work and individual study and a steady build-up of field work for all pupils. On reaching the third year, all pupils have a weekly careers lesson and a course of visits and talks by speakers from industry is arranged.

Towards the end of their third year, pupils opt either for Course A or B. Course A1 is for those who leave at 15+. It is designed to encourage self-confidence, social responsibility, pride of workmanship and a good attitude to study. Course A2 is a development of A1 for those who decide to remain a 5th year. More individual work is undertaken and opportunity is given for members to take some external examinations. With the implementation of RSLA, course A1 and A2 will be reshaped to form a single two year course. Course B is a two-year course for those who stay to 16+ and leads to external examinations.

Pupils on both A and B courses are set for mathematics and English and share games, design and field work. Since 1965 all examination pupils have taken CSE and the school now offers Mode 3 in geography, history, English, biology, geology, and physics with other subjects in Mode 1. Pupils also take GCE 'O' level English and mathematics as well as these subjects in CSE as it is the school's experience that it is easier to obtain an 'O' level pass in these than a Grade 1 in CSE.

The A course for the fourth year takes as its theme 'Setting up a home' and 'living in a community'. In the fifth year, its broad theme is 'This modern age'. The topics are thus arranged in order to enable the content of the course to move outwards. The specialist subjects of the fourth year curriculum contribute to the main theme but the course does not dictate or restrict the year's syllabus. It does require, however, that a proportion of the time be set aside in addition to the normal syllabus within the timetable. The proportion of time depends on the subject concerned and this time is used to study a topic appropriate to the main theme. This topic can be expanded, illustrated and presented in form periods.

For example, the theme 'Setting up a home' might have the following related topics, buying a home, my house, other people's houses, equipping the home and living in a home. Aspects covered might

include hire purchase, mortgages, banking, estate agents, insurance, legal implications, correspondence, design and construction, building materials, electricity, gas and water, painting and decorating, heating, houses in literature, houses in the last 100 years, houses in the world, history of furniture, kitchen equipment, electrical appliances, furniture design, manufacture and costs, tools and do-it-yourself, soft furnishing, entertaining, hobbies, and radio and television. These related topics and aspects are pursued in the specialist subject classes of the normal syllabus and their study would involve English, mathematics, crafts, physics, geology, history, geography, home economics and design.

The director of the course assists his subject specialist colleagues in planning schemes of work appropriate to the course and susceptible to presentation in a variety of media. Pupils are given opportunities for reading, writing, speaking, listening and organising material. These schemes of work must also be able to provide areas of enquiry that can be developed in ways so that pupils experience working as a group, or on their own. The course does not involve team-teaching. The director considers a fully-integrated approach often leads to too much compromise on the part of the subject specialists. Instead, he prefers a theme and sees the work as linked rather than integrated—but directed towards building up a coherent programme for the pupils.

Links are provided in the eight periods a week timetabled as 'form periods'. This is when pupils who may be tackling different problems present their work and when information gathered under the guidance of other subject teachers is integrated.

Pupils undertake a series of personal studies guided by work sheets. Quite a proportion of this work is undertaken outside normal lessons. The teacher gives encouragement by meeting pupils individually, in small groups or as a form. This personal study work can take place as part of the various subjects on topics connected with the main theme for example, electricity in the home might be a personal study in physics or the Victorian villa a history study.

A resources centre containing tapes, visual material, reference books and ephemera has been established and is now run by the pupils. A great deal of care has been taken to ensure adequate classification and cross referencing. Pupils use the centre without supervision.

An essential part of the A course content is a series of talks and related visits. The fifth year course with its theme 'This modern age' covers the world of work, citizenship, popular culture, mass media, scientific advance, the United Nations, food problems, irrigation, insecticides, TVA, social and economic problems and modern literature. Its aims are similar to those of the A1 course but in addition it attempts to broaden the interests and activities of those students studying for CSE in a small number of subjects. The concentration of much of the school's efforts on Mode 3 means that personal topic work established in the fourth year can be built upon to enable pupils to attempt the examination.

In 1970–71 26 pupils undertook course A and 23 course B. This year there will be three forms in the fourth year and two groups in the A course. Both A and B courses begin using the Schools Council's Humanities course starting with the packs on 'the family' and 'war and society'.

A county secondary girls' school with 455 pupils within an age range of 11-16 and a staffing ratio of 1:22 (*School C*). (Approximately 60 per cent of the girls stay voluntarily at school for a fifth year course and are given the opportunity of studying for both CSE and GCE 'O' level.)

Five years ago a special study course was designed specifically for the early leavers, and as these were mainly the less able, who could not cope with examination work, the development of the project was organised by the head of the 'Newsom' Department. The aim of the course was to link the last year's work at school with their hopes of a secure job, a happy marriage and a good home. In addition, it was intended to interest them in a wide range of leisure activities and to give them an understanding of the needs of the community. The work has been of an experimental nature as it was hoped that it would grow and gradually develop into a fully co-ordinated five year course.

At the beginning of the year the work is discussed with the girls and programmed under headings such as personal development, home and family responsibilities, careers, personal judgement, citizenship and service to the community especially to the under-fives and the elderly. Approximately two-thirds of the timetable follows the normal curriculum. The pupils' basic English and mathematics are taken by the member of staff in charge of this department and are based on the main topics. Other subjects such as music, art, and citizenship are taught by a small team of teachers who work together on agreed schemes which are discussed with the head of department. The other third of the timetable is spent at Pendever—an old Civil Defence centre situated in the grounds of the school and which was acquired in 1968.

This seven-roomed building had been in a bad state of repair and provided a big challenge to the girls in home making. The walls and ceilings were painted and floors laid, a kitchen was planned and a hairdressing and laundering area equipped. A workshop for dirty crafts such as pottery, tye-dying and simple woodcrafts was established. The girls work in groups of two or three for three half-day periods at projects arising from the course. They follow specially designed work plans on projects ranging from hostess cookery to woodcraft and chair upholstery and gardening. When their day's project has been completed, they go to the library in the centre, choose work cards and follow a private study project. These projects, too, are linked with the main headings and each girl builds up an individual study book with a selection of work in each section.

Visiting specialists provide courses in skin-care, make-up, flower arranging, hair dressing, health education and other topics. The school nurse and home economics teachers organise courses in child care, home nursing, care of the aged, first aid, and safety in the home. The school counsellor is also available to advise on personal problems.

The girls learn to give service to the community by helping at the two local playgroups and at the two old people's homes in the vicinity. They visit the playgroups in pairs for two mornings each week for a month, and learn to handle groups of small children at play. They are encouraged to make play things for the children and to prepare puppet stories and games for them. They also give tea parties and take them on trips to the zoo. Groups of old people are entertained periodically at Pendever or are taken on coach trips to the sea or over Dartmoor.

The local careers officer discusses career opportunities with the girls who are also taken around local firms for work observation.

This course of work has proved so popular that it has been the envy of the more academic groups, and certain aspects of the work have influenced the CSE in a Mode 3 child care and social development course. Crash courses have been organised for the upper stream on completion of their course work.

With the implementation of the RSLA, how far will this course be coloured by the obvious demands of the CSE? Many of the present early leavers will be capable with the extra year's education of gaining lower grades in the CSE. The headmistress is yet to decide whether the career prospects of a few CSE subjects will be so great as to justify changing the whole flavour of the course, or whether efforts be made to compromise and link the two courses without seriously undermining the structure of either.

A county secondary boys' school with 460 pupils within an age range of 11-16 and a staffing ratio of 1:22 (*School D*)

The headmaster took up his appointment in 1968 and in his initial appraisal of future policy took RSLA into account and its implications in terms of five years of secondary education. Staff were invited to discuss a policy statement charting areas of immediate priority and the future steps to be taken in a build-up which should reach completion by 1972.

It was agreed that this build-up should proceed simultaneously and with equal priority in four main areas. First, there must be an effective means for consultation with staff, pupils and parents. Second, there must be detailed study and development of the curriculum backed by reading, discussion and, whenever possible, in-service training and attendance at appropriate teachers' centre courses. Third, improvement was necessary in the general teaching resource material available in the school including audio-visual hardware and a wider recognition of the potential richest resource of all—the immediate environment and those who live there. Fourth, maximum opportunity must be provided within, and outside, the developing curriculum for the growth of personal involvement and responsible attitudes on the part of pupils.

The principal objectives were, and are, to overcome the problem of explaining to pupils, parents and others interested what the school is trying to do and to engage their active participation and support.

A council was established to represent each form, organisation, club or society in the school. Elections to the council are democratically conducted and school affairs, including the curriculum, are freely discussed and recommendations made. The standard of debate is good and a significant number of council recommendations have been fully implemented.

A 'friends of the school' society was formed as a deliberate alternative to the traditional PTA. Membership is open to parents, former pupils, local employers and anyone interested in the school. The society is used to publicise, explain and discuss school policy and all the normal PTA activities are also included. Its purely social functions are valuable in bringing together teachers and parents from the town and the widely scattered rural area served by the school.

A monthly magazine is published under the direction of an editorial board of pupils. This contains, aside from the usual features, a full

account of school activities and sections for careers and correspondence. The latter is used as a pupil forum for the discussion of curriculum and organisation topics. There is strong evidence that the magazine is widely read and appreciated by parents. The headmaster occasionally uses space to discuss school issues. News bulletins, too, are issued to parents when required.

Parents of new entrants receive a brochure describing the school's organisation, facilities and objectives, and an invitation to tour the school during an open day held towards the end of the term preceding transfer. Further meetings of parents and staff are held by years and all parents and staff receive information about the activities of the 'friends of the school' association.

In view of the decision to think in terms of a five-year course of secondary education, the school has made no attempt at this stage to establish a fully structured fourth year leavers' course with a view to extending it to a two-year course for non-examination pupils in 1972–73. The elements for such a course, however, already exist within the curriculum at its present stage of development. The headmaster believes strongly that the most carefully devised programme for the final two years of secondary education is placed in jeopardy if the first three years have not provided a proper preparation. Together with the measures already described, other changes have been introduced such as the reconstruction of the timetable to allow for 'blocking', open-ended periods and inter-subject study; visits, field-work and talks by visiting speakers as part of the normal work of the school; opportunities for staff to experiment with new freedoms.

One afternoon a week is devoted to 'community' periods when forms and form-masters are encouraged to decide what they are going to do. The outcome tends to reflect the personal interest of the teacher and a notable example of this has been the formation of a sub-aqua club. This began by a talk by the teacher who is an expert and ended with the pupils making their own 'wet' suits and studying the techniques of underwater photography. Another form, inspired by its teacher, undertook a survey of local footpaths and ended up by clearing many of them in their own time. This involved them with the UDC and its surveyors and a number of local landlords. The same group did the groundwork for a sponsored walk by 300 boys, covering a 19-mile course to beat the bounds. The money raised is helping to restore a local anitquity. As another form of service to the community, some older pupils are now actively helping in old people's homes and in the local hospital.

Such community periods are seen as a forcing-ground for new ideas and a unique opportunity for presenting teachers in a new light to pupils. The head is seeking to tap the experience of his staff and bring this into the curriculum.

A personal counselling service has been established and regular talks are given by health visitors. Careers guidance is provided from the third year onward and this is linked with a programme of talks and visits. Arrangements are made for pupils to visit the local technical college to see the facilities and sample courses.

All fourth year pupils are given the opportunity to spend the equivalent of one day per week on a technology project of linked science and crafts. Next year, practical courses in home and car maintenance will be offered to pupils not proceeding to a fifth year examination course.

The school has been allowed the use of an old primary school in a coastal village some 30 miles away and this has now been developed as a residential centre for field study and adventure pursuits. Pupils helped in the planning, renovation and furnishing of the centre.

School organisation and much of the pastoral care structure are based firmly on a house system. The intake is divided into four house/form units. The form-master moves up through the school with the same group of pupils and valuable contact is achieved in this way. The school is unstreamed and the basic teaching unit in the first two years is the mixed ability house/form group. This tends to break down under the influence of more intensive setting as pupils progress through the school, but every opportunity is taken to keep the unit together for as many activities as possible. Inter-house competitions go on throughout the year and houses are responsible for morning assembly at regular intervals and for running lunch-time activities. House officials in each year help with the day-to-day administration of the school. The following pattern is now emerging. The first three years of the curriculum are based essentially on a subject structure, but pursue links between different disciplines and give opportunities for individual and group topic work within and outside the school. There will be conscious planning of each year's work by all involved subject teachers working together to secure enlightened reinforcement of common topics. Pupils not going into a CSE course at the beginning of the fourth year will pursue a course which will draw freely on the resources of the immediate environment. Aspects of the course such as community service, careers guidance and work experience can expect to receive additional encouragement in this context. Provision will also be made for the practical home and car maintenance courses.

The headmaster is well aware that many of the basic themes of the course such as work, home, service, and recreation are no more original than those of any other school and that results will depend on the success of the policies already described, the enthusiasm and suitability of those—within and outside the school—responsible for conducting the course and the quality of the relationships they establish with the pupils over a period of time.

There are promising signs that these conditions are already being achieved within the school. Approximately 60 per cent of pupils remain at school for a fifth year at present and this is expected to rise to 75 per cent by next year. Not all these will be examination candidates and for these and all similar pupils for whom a fifth year is compulsory an alternative structure of success must be established. The school appreciates that it must be regarded as a caring institution, fully recognising that the main concern of leavers and their parents will be about employment prospects in an area where people, on the whole, prefer to remain with their roots.

From the point of view of the primary teacher some teachers' centres as they are now developing may leave something to be desired. The deputy headmaster of a primary school explains why.

Teachers' Centres —A Primary School View

COLIN RICHARDS

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Some of the statements made about teachers' centres may be deceptive in the picture they give of what is actually happening. It is said, for example, that the centres are places where local groups provide 'the motive power'[1] for progress in curriculum development; they are centres for the dissemination of knowledge about research and development; that 'in all of them teachers study curriculum development and new approaches to teaching through the child's own discovery.'[2] Are teachers' centres the physical manifestation of teachers' professional responsibility for curriculum development or does a closer examination of the centres' participants and activities disclose the fragmentary nature of this claim? This article seeks to examine centres from a primary school viewpoint. The shortcomings outlined here may or may not apply to secondary curriculum development work: that is for others to say.

Many teachers' centres have three main functions. They are used for in-service training; they provide a social centre for teachers, and they support curriculum development work. Schools Council Working Paper No. 10 confines its attention to the third aspect, as will this article.

In that paper three main bases for curriculum development were outlined. There were national development projects with feedback from local groups, there was participation of universities and colleges of education in the work of teachers' centres, and lastly there was 'the expressed wish of teachers to come together to conduct for themselves curriculum development, in order to help them to sharpen their judgements on objectives, improve their experimental procedures and play a full part in assessing the results of development work.' Centres were to be the physical means whereby these three bases were to be developed in a local area.

My personal experience of such centres, reinforced by discussion with a number of other people (some involved in national development projects) leads me to the conclusion that such centres have only really been successful as far as the support of national work is concerned. Groups of teachers have met to work through and discuss Schools Council material with varying degrees of objectivity and precision, but these discussions have been structured along more or less definite lines

1 *Curriculum Development: Teachers Groups and Centres*, Working Paper No. 10, The Schools Council, 1967, Page 8.
2 'Teachers, Trainers and Development Centres', *Dialogue No. 6*, Alex Evans, 1970, Page 3.

and a specific time-limit has been placed on teachers' involvement. Participation by universities and colleges has been fruitful as far as national work (and in-service training) has been concerned, but in general teachers have not got far with defining new objectives of their own, devising their own experimental procedures or developing their own mini-curricula.

To acknowledge that this is the case is not to blame teachers, wardens, the Schools Council or any other body of people. It was perhaps inevitable in view of the embryonic nature of the curriculum development enterprise in Britain. Basically though, Working Paper No. 10 underestimates the complexities of local curriculum development, especially the definition of objectives and the procedures for evaluation. A lot of good teaching does go on in any local area, but this is largely 'intuitive'. Teasing out the underlying rationale of good practice, formulating it for others to try out and then evaluating it in a wider setting are very difficult procedures, calling for much expert help and entailing far more time and effort than the vast majority of teachers can reasonably expend. Many interested teachers have been misled into thinking that local curriculum development work was comparatively easy and able to provide plentiful results in the short-term. The diffuseness of many meetings, the lack of definite terms of reference and the inability of many group leaders to see where they were going may have all contributed to a fall-off of teacher interest.

The majority of teachers have not been involved at all in the discussion of new objectives and methods, except in so far as these are discussed over coffee at breaktime—not the most effective time for curriculum development. To the interested but overpressed primary school teacher curriculum development work in a local centre is another burden to bear and he can scarcely be blamed for considering it of secondary importance when balancing the competing interests of home school and class. In addition to this, a good many teachers are only interested in teaching as a means of earning a living. These resent any intrusion into their 'own time' after the bell rings at 4 p.m. How typical or atypical these are is open to question, but that large numbers exist must be borne in mind when discussing the widespread 'primary school revolution' or the role of teachers' centres in *nationwide* curriculum innovation.

Curriculum planning is not yet fully recognized as part of every teacher's professional responsibility. Some heads still covet it as their preserve; many teachers shy away from it anyway, preferring the curriculum planning of the text book or the autocratic 'boss'. Only if time is allocated to this planning on a school basis will some teachers begin to realize their responsibility, and by this is meant more than the occasional half hour at lunchtime, constantly interrupted by children with bleeding knees or messages from Mum. In a sense teachers' centres are in the grip of a vicious circle. Teachers need to realize their responsibility for curriculum planning before they will fully participate in local development work (all other things being favourable), but how can they be made to assume this responsibility, if they are not stimulated to thought and discussion by some of their colleagues at such a centre?

As a result of factors such as these, teachers' centres as a whole are far from being the dynamic sources of 'motive power' for curricular progress in local areas. Because their major contribution to develop-

ment has been in support of national projects, they are in danger of becoming mere outposts for the dissemination of Schools Council orthodoxy, an orthodoxy all the more dangerous and insidious for being unrecognized by the recipients and unsought by the Schools Council itself. In the light of this two viewpoints are possible. Some people would maintain that a measure of central influence over curricula is to be welcomed at a time when educational changes are occurring thick and fast and when the population is increasingly mobile, so as to ensure some degree of continuity, progression and stability in schools. Others, however, proclaim the traditional autonomy of the English primary school teacher to decide his own curriculum and see any diminution in this as the first step leading to rigid centralized control.

If the present process continues, teachers' centres will tend to reinforce this central influence, but local autonomy as far as curriculum development is concerned *can* be promoted at a cost. This promotion of local initiative would require some radical changes. LEAs would have to provide their own research personnel to back up development work (or employ educational consultants); change-agents would have to be employed to get innovation moving in schools; changes in teachers' conditions of service would have to be effected so as to ensure that teachers spent a considerable time on curriculum planning either on the school premises or at the local centre. Local advisory staff would have to be expanded in numbers, and much more use would have to be made of personnel in colleges and universities. In this way effective local projects could be developed to complement and sometimes replace national ones. The latter too, would benefit from closer, more critical scrutiny at a local level.

Such a course may appear unlikely at present, but to me it seems the only credible alternative to increasing central influence over primary school curricula. Certainly the latter will not be combated simply by LEAs providing buildings and expecting primary school teachers to have the time, energy, initiative and expertise to develop new curricula for themselves.

The dissemination of Schools Council orthodoxy is increasing month by month and will continue to increase unless steps are taken . . . But perhaps the complete autonomy of English primary school teachers has always been illusory after all?

Is the existence of a considerable number of Middle Schools likely to affect the training of teachers?

Training Teachers for Middle Schools

J. V. BARNETT

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In recent years large numbers of colleges have been offering courses intended to prepare students for teaching in the junior secondary age range. Over 7000 left the colleges in 1969 from such courses; for men this represented almost half of the total leavers and for men and women combined it included over a quarter of those leaving initial training.

The bearing of such figures on training for work in the middle schools may however be misleading. There are a number of colleges which hold that many of their students are quite unprepared at 18 to make decisions about their future professional career, a general preparation for teaching such as a junior/secondary course can provide is seen as appropriate for them. There are also those who believe that the different demands made on the teacher of the younger and the teacher of the older child are nothing like as important as those features which they hold in common. Finally there are increasing numbers who believe that a teacher's skill and methods can best be acquired in the practical setting of the schools; the colleges should therefore concentrate on those aspects of a student's work which are more appropriately college-based, so that some guarantee can be given that the future beginning teacher is at least an educated person and a well informed and thoughtful participant in the educational debate. In this view initial training becomes pre-professional training rather than professional training.

At a DES conference held in 1970 to examine the implications for colleges of education brought about by the bringing into existence of middle schools, a leading middle school headmaster was asked to enumerate the characteristics he looked for in a young teacher applying for a post in his school. He described him as stable and adaptable, willing to meet the children's needs and not what the teacher thought they ought to need, enthusiastic about children, confident, articulate, reading widely and continuing to learn, and possessing individual skills, knowledge and enthusiasms which he is willing to share with others. Such a person would surely be appointed by any primary or secondary head who was fortunate enough to receive an application from him. Yet, if one is more realistic and accepts that such applications are rarely received, since only a limited number of people with such potential are attracted into the teaching profession; and if, instead, one asks what is the lowest common denominator with which you could make do in your school, the primary head would be constrained to lay more emphasis on those parts of the description which refer to meeting children's needs and the secondary head on those referring to reading, learning and knowledge. It seems clear that a middle school must place equal emphasis on both and it is in this that its special nature is revealed. Professor Ross has emphasised, rightly, 'that the thinking which is at present being directed towards the work of the middle

school, as a separate school holding the middle position in a new style of tripartite division of the educational process, is applicable also to the work of other schools which seek to provide for children in the age range concerned.'* Nonetheless there must be substantial differences in the ethos, mode of operation and objectives between schools designed to serve children in their middle years and those who cater for these children in association only with the younger child or in association only with the older child. And so, if anything can be done to prepare teachers in initial training specifically for the kind of school in which they are going to work, then there must be a consideration of what these differences are.

A denial of the differences would be to argue that a middle school will be so organised that its first phase will follow the practice of primary schools and its second phase the practice of secondary schools. The sole achievements would then be the satisfying of those demands which required organisation—and a marginal gain in the modification of staff attitudes resulting from their being contained within a single staff room. This would show itself in some amelioration of the situation which L. J. Burrows drew attention to when he observed that secondary schools for all their recognition of the problem of transfer seem unable 'to enable the child to make his transfer from primary to secondary school without bewilderment or even shock'.†

Middle School Courses

Let us then assume that the separate middle schools will be an entity, that the number will continue to increase, that they will provide, as Professor Ross predicted, 'a focus for the re-thinking which is needed'* and that many colleges of education will be encouraged to redesign their Junior/Secondary courses as middle school courses rather than middle years courses. What changes are needed?

It seems likely that the middle school teacher will be faced with the following work situation:

1. He will be required to operate as a class teacher to a distinct group of children over a wide spread of the curriculum.
2. He will be teaching an unstreamed class and so will have a wide spread of ability amongst his children and will need to be able to cater for the gifted as well as for the backward.
3. Although possessing a base of his own, he will be sharing many facilities with other teachers.
4. Whether on a team basis or a co-operative basis he will be sharing the children for whom he is especially responsible with other teachers who are more expert than he is in certain curriculum areas.
5. He is likely to be involved quite extensively with children in classes other than his own, particularly if he has a specialisation which the school needs him to share more widely than with his own class.
6. The degree of co-operation involved will require of him skills of programme planning, record keeping and testing which will permit children to move at their own pace while ensuring that basic skills are developed and that the learning which takes place is neither superficial, diffuse nor out of balance.

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* The Middle School—Professor Alec Ross. *Bulletin of the Comprehensive Schools Committee No. 9*: Summer 1968.

† Integration or Specialisation—L. J. Burrows, HMI *Trends in Education*, No. 9: 1968.

If these six features are related to the normal college of education course of main subject, basic and curriculum subjects and the theory and practice of education, what is the result? The justification for the main course clearly remains. The keynote of staff attitudes in the middle school is co-operation and nothing makes for a greater willingness to co-operate than the awareness that each member of a team possesses an expertise which his colleagues respect and need. In some cases the contribution will be the obvious one of providing specialist teaching in a curriculum area which all children need but which only a minority of the staff team possesses; French, music and physical education are obvious examples. The specialist contribution, however, is not only to be appreciated at this level. In any school organisation working on a co-operative basis, even in those areas of knowledge and experience where each class teacher is expected to work with his own group of children, there will be the need for the specialist who keeps himself up to date in new knowledge and new methods and who takes responsibility for leading the team and providing the genuinely 'on the job' in-service training for his colleagues. It is essential also to recognise that 'main subject' need not necessarily be understood solely as one of the traditional areas of the curriculum. Middle school staff will, for example, need guidance from those who are expert in the problems of the early years of adolescence, from those who have made backwardness and the learning difficulties associated with social deprivation their major concern, and from those who have made a special study of testing, evaluation and record-keeping. All need to work effectively in these fields but the likelihood that they will be able to do so may well rest on their having in their team a colleague for whom this has been his main area of study.

It is hard to see the justification for a second special study unless it is very closely linked to professional concerns and is of an interdisciplinary nature. Those colleges which are forced by the requirements of B.Ed. degree regulations to prepare students in two main courses will find it well nigh impossible to make room for much more vital concerns. If second subject courses are interdisciplinary, these will need to be looked at through the special focus of the bridging character of the middle school. The work in the opening years will grow naturally out of the enquiry methods used so successfully in the first schools; but they have to lead to the stage where individual children can pursue with greater intensity the personal interests which are beginning to exert a strong influence on them and which will develop into the distinct discipline approach of the upper years of secondary schooling. It would seem wise, therefore, that the interdisciplinary courses in the colleges should aim at demonstrating, for example, the specifically historical, geographic or scientific approaches and points of view in a co-ordinating theme rather than giving the impression that these distinctions do not exist.

The need for each middle school teacher to work with children over wide areas of the curriculum will mean that a variety of basic and curriculum courses will be as essential for him as for the teacher of the younger child. The difference, however, will be that in such basic areas as literacy and numeracy he will be working with a number of children who have begun to lose heart or who have already given up; and these children will be beginning to show the signs of acute disaffection with school which are the feature of the secondary school

slow learner to a much greater degree than his equivalent in the primary school.

Teaching as a Partnership

But perhaps the greatest demand which the middle school situation makes on the college programme is that students should be actively prepared for co-operative teaching, the sharing of programme planning and execution, the sharing of facilities and resources, the sharing of responsibility and oversight of children, in fact the full comprehension of the total aims and purposes of the school. In a very real sense this is a feature of middle school work which is paralleled to only a very limited degree in either first school or secondary school. The first school places major responsibility for groups of children with the class teacher and though he may have to work with ancillaries and the occasional specialist, the conduct of his programme within his classroom can be very idiosyncratic. In a similar way the subject specialist in the secondary school, while working to an agreed syllabus which exercises some constraints on what he may teach, is remarkably free to organise his programme and approach to suit his own personal style.

The need for the middle school teacher to help the child to move from one stage of learning to another so that when he reaches the secondary school he can acquire the knowledge and skills he will need for living, inevitably requires movement outside the frontiers of the self-contained classroom into shared facilities and shared teachers. Training for partnership, therefore, becomes of fundamental importance.

It has to be admitted that if one of the most powerful instruments for learning and acquiring teaching skills lies in how one experiences the learning process oneself, the traditional organisation of colleges does not give students a very notable exemplar of how to work in partnership. The highly departmentalised nature of most colleges affords students little opportunity to observe and experience any concerted co-operative venture undertaken by the staff as a central part of training. Staff frequently observe that machinery should be devised which will improve communication between departments and ensure that someone is responsible for the totality of the work a student is doing. Students, in their turn, complain that they find the divisions between the different items of their course distracting and hindering their growth as teachers.

It may be of help, therefore, to give an account of an experiment, initiated in the college where I have been Principal during the last ten years, which attempts to break through the departmental barrier and make the preparation of a teacher a whole-college concern so that those who follow the junior/secondary course may experience and acquire the skills of co-operative teaching which are so vital in middle school work.

The Course at Culham

All courses except those which are intended entirely for subject specialisation have been made the concern of the whole college and are not shared out to or administered by departments. In particular there is no Education Department and in its place the Academic Board administers the courses through a special sub-committee which has the whole of the staff and its resources at its disposal. The staff are divided into four teams, two operating in the first year and one in each of the

second and third years. Each team is a staff of a college in miniature; all the disciplines are represented and the team includes those with experience of teaching children at all levels and those whose special concern is one of the disciplines in Education. No member of staff works in more than one team and each team is responsible for organising the programme for the students in their year over a day and a half of 'Professional Studies'. One third of the course is conducted through what we call 'presentations'—a central core of educational studies presented by experts who need not be members of the team and who frequently are visitors, but in accordance with a programme planned by the team and attended by them. Students are not simply the passive recipients of these presentations but are frequently involved on a group basis in organising and contributing to them. Thus they gain experience of working with more experienced teachers in a co-operative task much as they will later do when they join the staff of a school as beginners.

A second third of the programme is devoted to what we term 'supervision groups'. Each year of students is divided into groups of about fifteen students and allotted a group supervisor from the staff team. For the final two years of the course the membership of the groups is constant and those whose concern is likely to be with children in their middle years come together in the same group. There is no specific syllabus to be covered by the groups; they are there to share their growing understanding and experience of education and so may prepare for presentations, take further the topics opened up in them or engage in problem solving activities of their own choice. The group supervisor is their resource person and not their director and the success of each group depends on the members' ability to work productively together, drawing on each other's special skills and knowledge and, through personal sympathy, acceptance and understanding, attempting to minimise the effect of individual problems and difficulties.

The final third of a student's work in this part of his programme is an acknowledgement on the part of the college that how a student learns, the speed at which he learns, the effectiveness of his learning, what he needs to learn and his readiness for learning it, are all separate concerns for each individual. This is as true in the college as it is in the school and thus it follows that we must leave to students a very considerable degree of freedom to choose the courses which they think will be of most help to them. The work which a student does in his supervision group may spark him off in directions which other students may not wish to follow; a presentation may just have begun to be interesting for him when it has to be rounded off; some part of his reading or a personal experience in a school may have given him a strong motivation to go much more deeply into an issue with the help of an expert in that field. If the college is large enough, there is the likelihood that a group of students will be feeling ready for much the same programme but they may be in different groups and even in different years. In the same way there are tutors who have had special experience or whose specialist knowledge is of a kind which makes them want to work with students who share the same enthusiasm or have recognised a particular need. To cover these two complementary enthusiasms, we have organised on a whole college basis a programme of unit-based courses built on a module of 15 hours spaced out over five weeks. Every tutor contributes from his own specialism to this

programme and we have a battery of some 150 courses on which to draw. It is the responsibility of the year teams to identify in advance through consultation with their supervision groups what courses are likely to be needed in the coming term and to ensure that they will be on offer. In choosing, a student has the guidance and advice of his group supervisor who sees to it that no future teacher of the middle school child comes to the end of his course without having taken appropriate courses in reading, number work, etc. But because a student undertakes these courses when he feels the need for them, tutors are supplied with well-motivated students ready to take the best they can offer.

Culham is a college which in the early sixties had virtually all of its students on junior/secondary courses. The reorganisation of its way of working in recent years has been in response to a desire to make a reality of such a course and not simply to use it as an escape from the problems set by questions of relevance. The coming into being of the middle school is going to solve our final problems—the means of giving students practical experience during their training with children in their middle years in schools where co-operation and partnership are the expression of daily practice rather than pious platitudes.

This article was produced by a group of HM Inspectors following discussion with teachers at several courses. It questions the emphasis now given to formal geometry and suggests that drawing as a means of evolving ideas and communicating them should be given greater prominence

Technical Drawing

Technical Drawing has been an accepted subject in the curriculum of schools since the Technical Instruction Act of 1889. It was then regarded as part of the science of the craft and as such was an acceptable subject for grant-aid. The distinction between 'manual instruction and the instruction in those scientific and artistic principles which underlie the industrial occupations of the people' became a controversial issue. As grants were made by the Department of Science and Art, the statement that 'only instruction in the principles of science and art applicable to industries' would be eligible for grant, meant that the teaching of the practice of a trade or industry remained in the industrial workshop. Manual instruction in schools included instruction in the use of tools, processes of agriculture and modelling in clay, wood or any other material.

Although the subject known as 'mechanical drawing' or 'constructional drawing' and 'practical geometry' is no longer taught as such in the primary schools and secondary level the external examination syllabii still divide the study into plane and solid geometry mechanical and engineering or building construction drawing. There are variations in the titles used, but the syllabus content has changed surprisingly little since 1889. Uniformity of syllabus content at 'O' level of the General Certificate of Education for all Boards was encouraged when exemptions were allowed to ONC students in their S1 examinations if they had a pass at 'O' level in technical drawing. This has not proved to be a successful exemption and is being withdrawn. It is, however, encouraging to note that some alternative syllabii are being developed and different examining methods being tried out in an attempt to provide more realistic courses.

Present Pattern and Organization of Courses

The domination of the subject by the demand of the various examination syllabii restricts the development of the subject, but its 'popularity' for examination purposes has increased in no small measure. The restricting influence of the syllabus tends to reinforce the subject as an end in itself, and not as one which provides a means of precise communication for craftsmen, scientists and mathematicians as well as developing an understanding of conventional representation in advertising, town planning, and in home based requirements.

Treated as a subject in its own right, technical drawing enjoys in many cases specialist provision in terms of accommodation, staff and curriculum time. The time allocation varies considerably but a two or three year course aimed at an external examination predominates and a weekly allocation of three or four periods is general. There is however little correlation between time allocation and success in examination. It is found possible in some schools to prepare pupils for the examination with a one year course or a two year course or even by following

a syllabus with assignment cards and tutorial help when it is needed. There is no norm, therefore, which suggests that there is a basic need in terms of time allocation for examination preparation but it is rare to find the subject being taken without the examination as a goal. This may be so even when only a small proportion of a class ultimately enters for the examination. Some schools provide a one year course for 'O' and 'A' level examinations in the sixth year either as preparation for a second attempt or as a means of gaining additional qualifications. It is found that the present system often permits the study of drawing without involvement in any craft. The significance of technical conventions in these circumstances is rarely understood and drawing becomes an academic exercise in line projection. It cannot be denied that under present circumstances, when the examination demand can be met with so little practical experience of the crafts which give rise to the need for communication through drawing, the subject is often regarded as an easy option to other studies.

The need for a qualification at 'O' or 'A' level should be considered critically and the objects of the study should be clearly understood. Individual specialist needs should be catered for as one objective, but the fundamental value of drawing as a means of communication and expression in pictorial form should provide the main stimulus for any activity. This emphasis on the value of the subject as a means of communication should provoke considerable discussion about the relevance of some aspects of the work now undertaken. Some of the exercises in plane and solid geometry which are still undertaken, are of little value and pupils might well be taught to refer to suitable books rather than to be required to remember constructions they may need only rarely.

Because of a misconception about the prospects which the subject offers in relation to careers in drawing offices, some schools devote more time to the subject than is desirable, and in some cases pupils are found to lack the necessary knowledge of mathematics and science when they apply for jobs or for registration on approved further education courses.

It is interesting to note that a number of enquiries have been made in recent years by teachers concerned with technical drawing, to find out the views of local and national industries concerning the subject in secondary schools, and in particular to what extent employers feel that examination success is a prerequisite or an additional qualification for pupils entering the various industries at the apprentice level. Three such enquiries conducted in Bristol, Gloucestershire and Somerset revealed that many companies were of the opinion that the teaching of technical drawing in secondary schools was a very worthwhile practice provided that it was linked with creative thinking, but that the possession of an examination pass in mathematics and a science was of greater importance. It was felt that any knowledge gained through courses of technical drawing at the secondary stage gave only a slight initial advantage to pupils undertaking industrial training. Almost all the industries concerned were against the subject being accepted as a qualifying subject for professional or university purposes, but at the same time they recognized the value of technical drawing as an essential part of a liberal education, since it is a useful and necessary means of communication.

Some slight advantage is gained by pupils who have spent time on

technical drawing when they continue in further education, but it is worth considering whether the use of so much time on the subject in its present form, and with its lack of creative opportunities, is really of ultimate value.

Some concern is being expressed about the shortening of the working week and the increase of leisure time. Living costs and the availability of kits and other aids encourage more householders to pursue a policy of home and car maintenance and an increasing number of aids are being made available for their needs. Detailed information is often provided with these aids and the understanding of the explanatory material and working drawings becomes a necessary study.

Drawing at the secondary level would seem to be concerned primarily with developing in pupils the ability to understand and communicate through representational drawing in its various forms, and in illustrating and encouraging the use of drawing for purposes of recording and as an aid to thinking. It is essential therefore to consider the need for maintaining a much closer relationship between creative opportunities and the communication of needs, and to ensure that any staff concerned with this work are fully conversant with these aims. At present it is often found that a member of staff who expressed an interest in the subject may take a class in drawing, whether or not he has sufficient practical experience or understanding of this work. Narrow courses directed towards the examination often place their reliance almost entirely on textbooks.

The Way Ahead

The present changes in educational organization provide opportunities for a reappraisal of the teaching of the subject. It is essential to consider the varying needs of both boys and girls of differing abilities and to provide pupils with a continuous experience from lesson to lesson, and with involvement at each stage in a complete project. In this way it will be possible for each stage to develop its own identity and yet contribute to the progress of each individual.

It might be as well to regard the introductory period of practical activity as one which provides opportunities for intuitive expression and of being engaged in the careful analysis of practical problems. Such practical problems will provide inventive opportunities, not only with the traditional media of wood and metal but of other natural resource materials, synthetics and mechanisms of all kinds. The analysis of any problem should provide opportunities for experiment and investigation, for discussion and decision in terms of acceptance, modification or rejection, and development. It should also provide the opportunity for the presentation of drawings representing the embryo of solutions as they are seen to be evolving. This is a most valuable means of communication which provides the evidence for individual pupil assessment by the teacher and directs teacher-pupil discussion.

It is desirable for each pupil to have experienced this common core of activity in any form of introductory organization and to be capable, within his own ability, of carrying out independently a simple analysis to reach a practical solution. There could also be opportunity for intuitive expression in conjunction with other subject disciplines to cater for all kinds of creative involvement. The basic understanding and experience of logical analysis at the introductory stage can then be

consolidated during any further stage of study and in any project activity where a recording of the process of scientific analysis is called for. Some schools provide biased courses for pupils of different interests and abilities. The development of the communication can then become relevant to the particular bias whether it is the automobile, electronics, outdoor pursuits, industrial archaeology, building construction or the home. Many schools are experimenting with a variety of courses in preparation for the raising of the school leaving age. Communication and recording is not confined to drawing but also includes the use of film and tape. Further experience is also being gained by some pupils through 'work experience' where the need for accepted conventions in the industry becomes obvious.

For more able pupils the careful presentation of problems can lead an investigation towards experiment and quantitative analysis. Activities of this kind can forge very strong natural links with other subjects and ensure a deeper understanding of common factors. The need for accurate communication in terms of drawing and quantitative work becomes more apparent and essential as the need for precision reveals itself. It is not only with the more able that precision in communication is to be encouraged. The less able in many schools are also involved in work with electrical circuits, radio and simple electronic circuits, with planning buildings and with the preparation of plans which often includes surveying and the estimating of quantities. Many schools have co-operated with the building departments of the local authority in building extra accommodation at the school and club houses for sports of various kinds. Here communication in detail becomes a most valuable part of the exercise.

The need for specialist teachers concerned with practical activities becomes more apparent as the study develops. The professional expertise of the teacher is in great demand in activities of this kind especially if pupils are to be fully involved in any investigations. If the common ground between subjects is to be investigated and working across subject boundaries is to be encouraged, team teaching will automatically be developed, and this in itself will bring a further unification of educational experiences for both the teacher and the pupil.

Accommodation

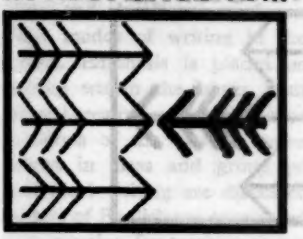
A review of the present drawing office facilities becomes essential if the best provision is to be made for the various planning sequences which are envisaged. The present provision is often far too specialized, in terms of draughting tables and drawing instruments. For future needs a planning room rather than a drawing office is needed. In new schools, an area which is within easy access of the practical rooms including the laboratories and art rooms, could well be provided and equipped with flat-topped tables and work benches with storage below, along the sides of the room. Mock-up materials of all kinds with constructional kits and the necessary electric supplies, will be needed to provide other ways of reaching solutions to problems. The extent of the provision will depend on the expertise of the team of teachers using the room. Some means should be established for purchasing material which may be needed urgently for various activities. Adequate reference material should be available and the environment and atmosphere of the planning room should be made stimulating and attractive to the pupils from all angles. Where special courses require parts of mechanisms and

instruments to be dismantled, measured and drawn, work top tables are of the greatest value.

Every effort should be made to create conditions which provide both a stimulus and motivation for the work undertaken in the craft room. This does not mean that every article made in the craft room needs to be drawn completely and precisely with instruments, but the necessary information for its production should be supplied from the planning room. Often freehand communication will suffice but when precision is needed (in terms of clearances or allowances) then drawings with instruments may be needed. The making of time consuming drawings for simple reference are not often necessary. Some pupils enjoy producing a precise drawing, but a good teacher will recognize when such a drawing is necessary.

The planning room needs to be recognized as the meeting point for all subject disciplines as they emerge in the various investigations or group projects. Where the planning room is situated near a large project area it again becomes the focal point for integrated planning. The extent to which the room is used depends entirely on how actively the staff accept the philosophy of pupils being involved in the planning of their work. In the interests of producing the most acceptable solution to any problem a number of departments will have to co-operate, and this will lead to a good deal of oral discussion between pupils and staff. The benefit and value of such discussion is obvious, particularly to those pupils who find oral communication difficult.

IN RESPONSE TO...



The organiser of Swindon Curriculum Study and Development Centre, Mr D. R. Stansbury, has contributed a comment on Questionmaster's Talking Point 'Staying on for What' in our October issue.

At Swindon we began in 1966 to plan the provision of new objectives for fifth form pupils. Two hundred pupils in seven secondary schools are now working for a Record of Personal Achievement. Next year when the raising of the age will cause all fourth year pupils to remain for a two year course, all nine secondary schools will be entering pupils. In one school alone 160 pupils will be starting in 1972. At the same time, pupils in Bristol schools will be joining where some very productive experimental and preparatory work is now being done. It is already clear that our objectives cannot be developed by tinkering with the examination system. It will only be developed by making a fresh start.

A comprehensive fifth year objective must be based on the development and recognition of personal qualities. The development of academic skills, concepts and knowledge will be subsidiary to this. Personal qualities cannot be objectively assessed; assessment of skills, concepts and knowledge can therefore be no more than a subsidiary descriptive tool and should not play a major part in motivating pupils or in providing qualifications.

There are three kinds of qualifications:

1. Objective measurements of skills, etc. (exams.)
2. Subjective judgements (reports)
3. Records of things done (curriculum vitae).

The first two are already highly developed in schools. The third kind of qualification which is well known to everyone who has ever applied for a job, has every characteristic that we require for a comprehensive fifth year objective.

There is obviously a great deal of development and study to be done but the work that has been done already indicates that this is the right direction. If an employer knows what an applicant has done he can guess what he can do. A record of things done well is a qualification. It is a qualification that anyone can obtain. It is not competitive. It does not require assessments. It is composed of facts which have to be verified. There is no rank ordering of pupils, no mountainous bureaucracy of validation. Pupils can be allowed to excel in different ways. They do not have to be cut down into isolated units to allow for accurate comparisons. There is no need for syllabuses to be laid down in advance or standardised. No matter what the exponents of new style examinations may or may not think is possible it must remain true that if pupils are going to be compared objectively and accurately they must do similar things and this must be laid down in advance. If we are not comparing pupils but are recording individual personal achievements or participation in group activities there is no need and indeed no possibility of determining the syllabus in advance. A recording system does not determine the curriculum, it merely records what has been done.

A recording system will provide the kind of information that employers want. They want some information which will help them to judge how well an applicant can perform a particular task. An employer needs to know about specific aptitudes, about social, emotional and physical as well as about intellectual skills. The constant change and sophistication of technology is making the idea of vocational training at school even more pointless and irrelevant than it has been in the past. If we can let pupils develop their strengths and recognise their weaknesses; if we can record their achievements in all activities we can provide employers with information which will qualify youngsters positively for the jobs that they can do.

There are three steps that have to be

taken in order to establish an objective for all pupils.

1. The decision has to be taken officially by the Heads who will run it and the LEA which will pay for it.
2. Money has to be set aside in sufficient time. The new qualification must be paid for in the same way as the old ones. It cannot be paid for out of capitation whilst examinations are being paid for centrally and separately.
3. The new objective must be designed or adopted ready made.

The Record of Personal Achievement scheme is controlled by a committee composed of all Heads of RPA schools. Steering Committees in Swindon and in Bristol are responsible for the detailed design work and for executing decisions. In each case the authorities concerned have begun by allocating the cost of entering each pupil for six subjects in the CSE (£10 per pupil). The unit cost has come down as numbers have risen but £10 per head is right to start. Out of this fund all materials are paid for as required and there is no limit on the number of cards or handbook sections or diary centres that a pupil may use and it is possible for new materials to be designed and paid for as required and to mount experiments.

Further information about this scheme can be obtained by writing to Mr. Stansbury at the Swindon Curriculum Study and Development Centre, Stanford Street, Swindon.

New from DES

Published during December

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TREND-SETTER

In-service English

This account of the course at Mather College of Education was provided by Mr J. M. Gregson.

In the last generation there has been a revolution in primary school English teaching comparable to but less publicised than that in mathematics. It was with this in mind that the college decided in 1970 to mount an in-service course for primary school teachers on 'Language and Reading Development in the Primary School'. The course is a one-term full-time course for teachers on secondment. The second such course ended in April 1971 and some comments and evaluation are now possible.

About 25 to 30 per cent of the time available is spent on the teaching of reading. The teachers involved come from very varied professional backgrounds, ranging from the infant specialists with years of experience in this field to teachers who have transferred from secondary specialisms to junior schools and have no formal training in and limited experience of reading teaching. Time pressures are always severe, but our aim is to consider the mental processes and psychological attitudes involved in each stage of attaining reading competence, from the pre-school years to the development of fluency in the junior school. Though the current schemes are available for inspection and discussion, no particular scheme or medium is advocated by college staff: the aim is to put teachers in a position where they are sufficiently informed to make the right choice for their particular schools, or (since a change of reading scheme is for most schools a relatively costly decision) to supplement the scheme they will be using where it has clear weaknesses.

A fair amount of time is spent on the place and development of creative and other modes of writing in the primary school. Emphasis is placed on original writing within the larger framework of general creative work in the school, and the functions of the various approaches involved in class and group poems and individual writing are discussed. Formal aspects of English are considered also: the first question for teachers to answer here is how important are correct spelling, grammar and syntax in relation to children's writing as a whole. Only when it has been decided exactly what stress should be laid on these elements can consideration be given to the various techniques of teaching them which may be employed. Generally, we try to see the creative and formal aspects of English as complementary elements in good writing rather than as contradictory pressures upon children.

Oral work is, of course, the vital prelude to almost every other activity in the primary school, and its importance hardly needs stressing to experienced teachers. However, the work of Bernstein and others in recent years has asserted the crucial nature of this work, particularly in the early school years. Much splendid informal oral work goes on in every modern primary school classroom, but teachers are asked to consider, as a reinforcement of this often incidental and haphazard oral practice, the incorporation of some rather more structured oral work for their children.

Drama

The place of drama work in the primary school and the techniques involved in securing success receive appropriate consideration. Movement, mime and words are discussed and practical exercises suggested for various ages and stages of development. The inter-relationships between drama and other aspects of English work are particularly obvious and this is an area where co-operation and exchange of ideas among teachers in a group have been of particular value.

A feature of the revolution in English teaching which I posited at the beginning of this account is the renaissance in children's literature during the last fifteen years. The vital part which good literature must play in children's development is obvious to anyone with an interest in English teaching, but this is a field in which most teachers on the courses have felt themselves to be ill-equipped. This is hardly surprising: there are so many pressures on the modern primary school teacher that he or she is often pressed to survive, let alone develop, and keeping up to date with the increasing flow of children's books is a time-consuming if enjoyable task. But book-lists, while welcomed, are of limited use; our aim on the course is again to equip teachers with the tools to make decisions rather than to make decisions for them. Thus consideration is given to what makes for good and bad writing for children, and the ritual dismemberment of Enid Blyton which seems obligatory on such occasions is set alongside examples from other authors of effective treatment of similar themes. Teachers are asked to read children's literature during the course as a preparation for discussion and evaluation sessions. By the end of the course, there is usually a fair consensus of opinion about children's authors, though inevitably in so subjective an area there are books on which we agree to differ.

Poetry

The teaching of poetry to children is an allied and perhaps equally subjective area, but one on which there is a surprising measure of agreement: if we can enjoy poetry with our children and connect this and other areas of literature with their own writing, we shall be on the way to success.

Other aspects of the course involve consideration of the functions of public, school and class libraries; English for immigrant children; and handwriting, with the various choices open to the teacher in this area. Teachers on the course are introduced to some of the hardware and audio-visual material appropriate to the primary school age-range. It is only too easy to show teachers machinery which is wildly beyond the budget of the average primary school and thus unrealistic; on the other hand, many teachers are not aware, for instance, just how portable,

adaptable and relatively cheap the modern cassette tape-recorder is.

One afternoon a week is spent on literature at an adult level, with no direct relevance to the primary school classroom. I had some doubts about including this element when setting up the course, puritan utilitarianism indicating that it must be a dilettante and self-indulgent exercise; in fact, it has proved a most rewarding and interesting part of the course for both tutor and teachers, and I have had to resist pressure to increase its time-allocation at the expense of other elements.

Visits are made to schools engaged in interesting work in English; the opportunity, for instance, to see the *Breakthrough to Literacy* reading scheme operating in a new school and hear the opinion of the teachers using it is worth much theoretical discussion. Visiting lecturers are also used for specialist topics such as the operation of the child psychiatric services or schools television programmes.

Teachers on these courses come from a wide variety of backgrounds, the only common element being some years of experience of teaching. Ages so far have ranged from 28 to 55, with an average of 37; over half have been heads or deputy heads of schools. Specialisms are not usually possible or desirable in primary schools, and though some of these teachers have special interests or qualifications in English, the common bond is a recognition of the importance of all aspects of English in the development of the primary school child.

Accepted applicants for the next course include a teacher with two plays produced on the professional stage and poems published in PEN new poets, a Birmingham teacher whose drama work with children has been featured on Midland television, and a Yorkshire headmaster who is chairman of a local group of teachers investigating just how widely read 'recommended' children's literature is among junior school children. This indicates what is by far the most valuable element of the course: the exchange of information and informal opinion amongst experienced teachers in the seminars which constitute a considerable proportion of the course.

The Organisation of Schooling

Alfred Yates

Routledge and Kegan Paul
£1.40 (paper 70p)

This book is a useful addition to a useful series, intended for College of Education students, but also of value to experienced teachers. The author describes, with detachment and brevity, the differing types of school and the ways children are allocated to them. He then turns to the grouping of children within schools, and shows how differences between schools are reflected in grouping within schools. In each topic, attention is drawn to the findings of research. The final chapter provides a summary of the pros and cons of differing forms of organisation. Its major message is that there is little to choose between them and that they are largely irrelevant. A planned variation between types of school, as in the establishment of single sex schools or of selective schools, makes for complexity and rigidity and should not be adopted unless there is positive justification for it in a given set of circumstances. The same goes for streaming. But it is difficult to know how to solve the problem of the comprehensive neighbourhood school which draws the great majority of its pupils from the working and lower working classes. In such circumstances children's opportunities for learning from one another are restricted.

Teachers tend to prefer the educational system they are accustomed to. Likewise, in a streamed school, they adjust their expectations to the supposed level of achievement. This helps to explain why, despite the evidence that allocation to streams is bound to be inaccurate, the amount of subsequent transfer is small.

Though the author is fully aware of the importance of teachers' attitudes, he might have taken rather more account of them in assessing the value of changes of organisation. The first generation, at least, of teachers involved in innovation seem in general to be stimulated by it. This probably explains in part the success of the Middle Schools, in which Dr Yates takes some interest. He believes that slow readers will be given more help in reading in a middle school than in a secondary school. This is one argument for the middle school; it is perhaps surprising that no mention is made of the extension of a first school as a part of changes in ages of transfer. A longer period in the first school appears to be the single most important factor for improving standards of reading without any sacrifice of individual and creative work.

The organisation of schooling includes helpful suggestions for further reading. There is unfortunately no index: the author may well have thought that so tightly argued and condensed a work needs to be read straight through. This is certainly true but readers who wish to return to a particular point may find the clear contents table insufficient for their purpose.

S.M.C.D.

Starting School

Richard Palmer

U.L.P. £1.85

The sub-title to this book 'a study in policies' is well chosen, for it is a book for administrators, who are considering future patterns of schooling for young children, as well as for teachers and parents who are anxious that the transition from home to school should be as smooth as possible, and who realise the educational importance of the early years of childhood. The first part of the book explains clearly, and with helpful repetition, the existing forms of organisation, the present provision for children under 5, and the steps that have already been taken to ease the child's admission into school.

The author's plan, 'The London Plan', suggests compulsory full-time schooling for all children from the September after they reach the age of five, and for autumn born children also during the summer term preceding that September; before this there could be one term of compulsory part-time schooling, and voluntary part-time for as many children over 3 as possible. He compares this with the Plowden proposals, both 'long-term' and 'interim', and he has incorporated many of the good features of them. The Plowden proposals are however based on an age of transfer to middle schools at 8+; Mr Palmer's flow-diagrams also indicate transfer at 8+ although he says the plan would be equally applicable if the present 7+ was retained. Many infant teachers would find this less acceptable, though welcoming more opportunities for nursery education.

He has worked out the expenditure staffing and accommodation in two areas of London and used this as a basis for national costing. It would be interesting to compare figures if other L.E.A.s would do a similar exercise, for Mr Palmer states that the nursery provision in Peckham is already 'over double the national proportion in maintained schools'. He estimates for 36 nursery assistants for 20 schools, but the 2 per cent increase in teaching staff seems a very modest claim which would vary very considerably from area to area, as many infant schools are not staffed in September for their maximum summer-term role. He is very anxious to maintain 'nursery standards' for all classes where there are children under rising-5, but no mention is made of outdoor play space.

Mr Palmer writes however; 'money cost is not the main point'—'the main reason is to get the best pattern of early education for our children'. In his anxiety to propose nursery classes as integral parts of first schools, with the benefit of continuity and parental involvement, perhaps he has paid too little attention to nursery schools, to possible links with day nurseries or to play groups. But his book is well worth reading, his plan worth considering, as his concern is for the large number of children for whom there is, at present, no pre-school provision.

B.E.R.

Education and Modernisation

M. D. Shipman

Society Today and Tomorrow series
Faber and Faber £4.00

This is both an interesting and an enlightening book. Based on a solid foundation of sociology and social anthropology, it formulates an interpretation of education as a process of social conditioning, a response to the challenges thrown out by industrialisation and urbanisation in nineteenth and twentieth century England and in Japan since the Meiji Restoration of 1867. It is based on the proposition 'that education can only be meaningfully studied as a part of many social institutions, and that educational change is involved in the development of societies dominated by large organisations', whether these organisations be governmental, industrial-commercial or social. The school bell and the factory hooter, in fact, symbolise similar types of organisation.

Thus, the rigid separation of elementary and grammar school provision in nineteenth-century England reflects the hierarchical conception of society held by the ruling class of the period; and progress towards comprehensive secondary schooling goes hand-in-hand with the movement towards a greater degree of political and economic democracy, with the break-down of an hereditary élite. Again, the monitorial system in education corresponds with the factory system in industry; it is 'the steam-engine of the moral world'. Similarly, 'the role of the school is best seen as part of the total machinery of coercion that was used to limit disturbance and incalcate a new social discipline'; and as such it belongs with the Metropolitan Police, the Factory Acts and Public Health legislation of the mid-nineteenth century.

It may, indeed, be thought that Dr Shipman rides his hobby-horse rather too hard, that he attributes to educational policy-makers more cunning and more Machiavellian motives than in fact they were capable of. To argue for instance, as he does, that there has been a deliberate policy of providing social studies courses for the less able children in comprehensive schools, while the bright ones get on with their Latin and Greek and other academic pursuits in preparation for a career in the Establishment, is to travesty the facts. And when he goes on to suggest that it is the deliberate intention of the Powers That Be that able children should receive their education through books and individual study, while the lower orders get their 'filleted information' through radio and television, the mind boggles at so sinister a conspiracy.

Incidentally, Dr Shipman greatly overestimates the extent to which social conditioning can be effectively carried out in the schools of today. 'Children', he says, 'learn to sit still, to keep quiet, to move with discretion, to compete and cooperate'. Faced with this assertion one can only sigh '*O si sicut omnes*!', and wonder if the author has ever set foot inside a large comprehensive school.

Nonetheless, by enabling us to see education as integral part of the process of change in a modern industrial society, shaped and controlled by the tensions within that society, Dr Shipman compels us to readjust our perspective.

The section on education in relation to social change in modern Japan, though shorter and more superficial, is equally illuminating. The author demonstrates conclusively the way in which the government of the post-Meiji period deliberately set out to remould the educational system in order to produce not merely docile and fervently patriotic citizens, but also the technical expertise required for rapid industrialisation—with what terrifying success later events were to show. And it is revealing to note that one of the first actions of the American Occupation in 1945 was to reverse the process—to decentralise administration, reorganise schooling on comprehensive lines, and replace nationalist indoctrination with American-style social studies. This process of democratisation through education has, it appears, suffered some setbacks in the last decade or so. But that it happened at all goes a long way towards validating Dr Shipman's well-argued thesis.

A.E.E.

Radical Alternatives

School is Dead
by Everett Reimer
Compulsory Mis-education
by Paul Goodman
Teaching as a Subversive Activity
by Neil Postman and Charles Weingartner
Essays on Education
by Jules Henry
36 Children
by Herbert Kohl
Penguin, 40–50p

Penguin Education has shown most welcome enterprise in making available in this country a group of books the appearance of which in the United States spread over nearly a decade. Simultaneous publication probably achieves an impact greater than either author or publisher could in the normal way have expected; and when, as is here the case, common pre-occupations link the thought and writing of half-a-dozen authors, the reader too is helped to focus his attention on the basic purposes of education and the criteria by which we evaluate success. All these books could be described as radical; some are bitter in their perception of flaws so fundamental in present school structures and motives that, in their view, damaged or ill-educated individual personalities are the inevitable end-product of a system designed to serve an unjust society. The development of the various analyses is compelling reading; but the writers are in general less happy when they turn to remedies. Sympathetic readers may describe them as visionary; others are more likely to think them confused. To translate burning aspirations into practical suggestions is rarely easy; but remarkably few measures emerge from these books which could readily be put into practice in either American or European systems of education.

'School is Dead', announces Everett Reimer, in the most recent of the five books, with almost theological fervour—dead in the sense of inert, serving an outworn mode of living. ('School' denotes any educational institution at any level, including university.) The implacable enemy to him is the technological society, which promises unlimited progress but is in fact embarked on a voyage to self-destruction—aided by the schools which teach conformity to the present technology-dominated social and economic order, determine the status within it of the individual student (since failure in school debars him from entry to any but menial occupations), and indoctrinate him with their own values. He sees indoctrination and conformity as the main products of the schools, with cognitive learning lagging a long way behind and nourished only by standardized and graded curricula; education has become ritualized because it is dedicated to serving and maintaining a consumer society which is squandering the earth's resources.

The diagnosis is urgent; what of the remedy? 'Peaceful revolution is my message,' says the author, taking as his positive thesis a belief that people at large can be and must be made aware of their 'bad institutional habits' and change them. School is too interlocked with the present system and attitudes to do it. His practical remedies have much in common with those promulgated by Ivan Illich (Reimer and Illich were indeed collaborators in studies of human resources in Puerto Rico).

Any effective alternative to school must ensure opportunities for each individual student to learn according to his own needs, and the key is access to 'networks of people' (the human resources of an area) and 'networks of things' (the toys, games, tools and skill models through which learning is acquired). Since there are to be no schools, detailed records of these are essential, and students would be put in touch with appropriate resources on both networks by computer. The rôle of the teacher, he admits, is elusive. The final chapter lurches out of education into politics and concludes with a forecast that the thunder will roll when the deprived masses in Africa, Asia and South America, still largely quiescent, stir and join the deprived in the more prosperous countries; the business of the educator is apparently to turn the thunder on.

The weakness of this approach is that, even if Mr Reimer's view of the 'dead' nature of our present system is accepted,

what he proposes is at least as vulnerable to authoritarian take-over. Moreover, what makes sense in terms of the reasoning adolescent may make none at all in terms of the young child, who is so entirely dependent on the influences to which adults expose him and the guidance they give him; he cannot fend for himself. It is indeed a weakness of all the books under review (except that by Herbert Kohl, who is not concerned with the system as a whole) that, apart from pious aspirations that parents should accept more responsibility for the education of their children, they seem scarcely to be aware of the child below his teens.

The underlying belief or argument of the other four books (the style varies with the temperament of the writers) is that schools ought first to nourish personality and relationships, and that the knowledge they impart should be rooted in the realities and the aspirations which mark the lives of young people—realities which do not exclude fantasies, for the criterion is what the young consider real, not the old. Education is through relationships, and its purpose is to enable the young to question, to debate, to find their own way, and to form their own moral and value judgments. The message of Goodman and of Postman and Weingartner is that the authoritarian hierarchy of teacher and taught, the received nature (in the religious sense of revealed and unchanging tradition) of the curriculum, and the straitjacket of unimaginative teacher attitudes are so oppressive that the school as an institution has the kiss of death upon it. With Reimer, they see society rushing to disaster; man is polluting his environment and destroying his autonomy; but the frantic pace of change is not mirrored in schools which continue to prepare for the vanished world of a generation or more ago. Both 'Compulsory Miseducation' and 'Teaching as a Subversive Activity' make a brilliant case, the latter in particular adducing case histories and a body of support, from Marshall McLuhan to Bruner, which are witty and compulsive reading.

Can society survive? and can the school help? Reimer utters a firm no. Goodman doubts it, but is willing to try. For him we are already embarked on a Gadarene rush towards 1984, and the school system is too rigid and entrenched to change rapidly and radically enough. Postman and Weingartner, despite the magnitude of the task, see the main hope of changing the thinking of an entire culture at enormous speed as lying in the school system; the task of education is no less than helping us to recognise the world we are actually living in and to master these concepts which will increase our ability to cope with it.

Some of their practical examples for promoting individual thought through the curriculum and for helping to bridge the generation gap have a familiar look to those who in this country have watched post-Newsom developments in secondary schools and have seen the Schools Council Humanities and other projects in action; but their final chapter on 'Strategies for Survival' provides a brief and thought-provoking list of concepts necessary to survival, and defines the kind of person whom education must create if we are to survive. This is rewarding reading.

Even those readers who deny the basic thesis or who consider it over-stated are likely to enjoy these books. In comparison, Jules Henry is more muted, less explosive, possibly more profound. An anthropologist of international repute who was familiar with the study of sociological patterns, he nevertheless concentrates in 'Essays in Education' on detailed studies of relationships and of teaching, and of their effects, within the classroom. Much of what he saw he found repugnant—lack of sensitivity by teachers to children, the resultant defensive coarsening of the students' fibre, and the sharp development of social antagonisms. More than half the book is devoted to an essay entitled 'A Cross-cultural Outline of Education' which, though some of its assumptions will not command general assent, should help almost any teacher to hold up the mirror to what is actually happening in the relationships and the learning processes in his or her own classroom.

Herbert Kohl's *36 Children* makes a striking flesh-and-blood commentary on some of the analyses of the foregoing

writers. As a detailed account of a year spent teaching 36 twelve-year-old negro children in the heart of Harlem, it breathes authenticity and a warm humanity. The initial shock and bafflement as he realised the vast cultural gap between him and his charges, his struggles to understand and to communicate with them, the growing yet fragile successes and the final wounding recognition that the children (with many of whom he remained in touch after leaving the school) were indeed the victims of some of the worst inequalities in our society and thereby almost fore-doomed to failure, these all make a moving record —and one which of necessity has no happy ending but only a reproachful question mark. It is a book in the tradition of 'To Sir, with Love'—but in a setting even more sombre—the most alarming aspect of all being the lack of any indication that other teachers besides Mr Kohl were reaching the same conclusions and trying, as he did, to surmount the barriers. Can the system he describes be everywhere as barren as it appears?

Which prompts the reflection—what have these writers to say to us, east of the Atlantic? The passionate pleas for love and understanding in relationships, for the dismantling of authoritarian school organisations, for the abandonment of didactic teaching of curricular material remote from contemporary needs—all these will find an approving echo in the mind and heart of a great many teachers, parents and others. Without incurring a charge of complacency, one may also conclude that both curricular reform and experiment in teaching method in this country, though patchy in their incidence, have advanced further than anything recorded in these books. The social backgrounds of course differ enormously, but we are a long way yet from having to feel, with Paul Goodman, that the school system is not viable and cannot be made so, or from having to regard with Herbert Kohl the problems of the crammed inner city as a cause only for despair within the school. We should be grateful for the fundamental questions which these books pose, and for the warning lights they flash—and we should certainly continue to work out our own answers. It was a happy augury for transatlantic interchange that the same month in which this group of Penguin Education Specials was published also witnessed the simultaneous publication in London and New York of the first 13 titles in the series *British Primary Schools To-day*, produced by the joint Schools Council/Ford Foundation Primary Project. Some of the answers to the questions posed by the first group may even be found in the second.

L.J.B.

Streaming: Two Years Later

by Elsa Ferri
NFEL, £2.10

This is a follow-up study to the exercise which led to the publication by the NFER in 1970 of *Streaming in the Primary School* by J. C. Barker-Lunn. The original investigation between 1963 and 1967 involved 5,500 children in 36 matched pairs of primary schools. Its conclusions were generally comforting to those of us who value persons above organisational devices.

The follow-up exercise of which the findings are now attractively presented in this book concerned 1,716 pupils who were now in their second year of secondary education. The classification of the secondary schools into streamed or unstreamed presented great difficulties because of the complexity of organisational patterns and because of the typical compromise solution adopted in most secondary schools by which the organisation of the early years tends to consist of a mitigated form either of streaming or mixed ability grouping. As the pupils were in the second year it was the organisation of this year which was taken into account and finally a somewhat anomalous classification was adopted by which 53 schools with streaming or banding were regarded as streamed and 30 schools with unstreamed classes and setting for some subjects were regarded as unstreamed.

However, the exercise was devised as a follow-up to the primary investigation and its findings are important notwithstanding the problems encountered in classifying the secondary schools. The pupils were assessed by a series of tests which as far as

academic attainment is concerned confirmed the findings of the primary exercise. They showed no difference in the progress of comparable pupils who had attended streamed or unstreamed junior schools. "Some slight evidence" emerged that those from unstreamed junior schools maintained the higher level of divergent thinking shown in the primary findings. In relation to attitudes, self-image and aspirations the differences found at 10+ between streamed and non-streamed junior schools had been largely eradicated by the end of the second year in the secondary school. This general conclusion may appear not to be a dramatic one but the results of the investigation are fully described in this book in a readable and most interesting manner and a good deal of useful information emerges en route. For example the chapter giving case studies of individual children provides much food for thought about the sometimes traumatic experiences involved in transfers from primary to secondary schools and about the need for good home and school contacts about non-problem children in the early years of secondary education. Above all it reinforces the importance of teacher attitudes and teacher/pupil relations. This book provides a great deal of useful information within a brief compass.

S.E.G.

New from DES

Published during November

Keeping Animals in Schools

Price 50p

This new handbook for teachers has been written by a group of HM Inspectors, knowledgeable about animal husbandry, who were concerned that modern methods of keeping animals should be encouraged in primary and secondary schools. The book gives advice about keeping a wide range of animals in classroom conditions and suggests some that are not suitable for schools to keep because of the specialist care they require.

Available from HMSO, P.O. Box, 569, London S.E.1, or any bookseller.

What We Owe Children—the Subordination of Teaching to Learning

Caleb Gattegno

Routledge and Kegan Paul £1.25

Despite my intense personal interest in the subject of this book I found it difficult to read. The author's style does not always help the reader to understand what he wants to say. In parts the book reads like a translation and colloquialisms appear in the middle of formal sentences.

The title will attract many teachers and others who are concerned more with classroom method than with the content of education—that is more with learning than with teaching. In the preface we read: 'This discussion is orientated most directly to two groups: educators in schools or school districts at the elementary and secondary levels and those in teachers' colleges, both students and professors. But since parents are also educators, they too may find some use in the ideas examined in this text'.

The educational references are American rather than English but there is much that is applicable to teachers everywhere. For those teachers in England who are used to providing learning situations for their pupils the ideas will not be new but they will doubtless be encouraged to find support for an approach which, because it builds on the strengths of individual children, makes considerable demands on their teachers.

Chapter headings will give some idea of the scope of the book: 1. The Powers of Children; 2. The Teaching of Reading and Mathematics; 3. The Teaching of Social Science; 4. The Role of the Teacher; 5. Preliminaries to the Science of Education. For good measure the appendix includes a paper written for the fiftieth issue of *Mathematics Teaching* (founded by the author), on 'A New Epistemology: Teaching and Education'. In the first chapter we read: 'The only way to be properly prepared and secure in a changing world is if we accept the future as unknown. . . . That we must prepare for the unknown is my approach to education'.

As we would expect, a fine distinction is

drawn between teaching which insists: 'You should know it because I told you' and the author's alternative: 'to build on strength'. He calls these strengths, 'the functionings of children' and as an example cites 'sitting'. 'We learned so well to sit that we do not have to learn to do it again. Sitting is one of the functionings . . . it is not instinctive. It takes months to learn.'

E.E.B.

Immigrant Pupils in England—the LEA Response

C. & E.P. 2.30p.

The first phase of this report considers LEA provision for immigrant pupils. The second and third phases will be concerned with school organisation, composition of school populations and by 'intensive observation and attitude assessment' the ethos existing in multicultural schools.

This phase of the report gives details of the incidence of immigrant pupils in the various LEA areas and breaks the figures down into those children recognised by the LEAs as needing specific help with English. The report goes on to look at the various organisational patterns in different authorities such as dispersal, withdrawal groups and full and part-time centres. Attention is given to the numbers of immigrant children in ESN and grammar schools and the assessment procedures involved. The additional appointments of LEA officers and teachers is analysed as is the provision of in-service training for serving teachers. Other relevant points such as special payments to teachers, language classes for parents and summer schools are included. The report contains a great deal of statistical material appertaining to those factors under consideration which will be of considerable value to educationists working in this field.

A striking feature of this report is the diversity of the organisational patterns that exist and the variety of emphasis that LEAs have put on the urgency of meeting the needs of their immigrant pupils. This is highlighted in the report by the degree of special provisions made, which varies from no special provision at all in an authority with more than four per cent immigrant children in its schools to a full scale attack on the problems encountered in others.

The report gives cause for concern when presenting the picture of provision for West Indian pupils. There seems to be almost a total lack of special provision to meet the needs of these children, even though a greater proportion of them are finding their way into schools for the educationally subnormal and fewer into grammar schools than any of their immigrant contemporaries.

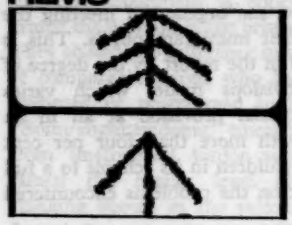
In-service training of teachers is shown to be very patchy and there is obviously a difficulty in involving secondary subject specialists in courses in English as a second language, but if they are to be effective teachers of their specialisms in multicultural schools at second stage language level then their attendance would seem a necessary factor in making this possible.

The report discusses the value of form 7(i) but acknowledges that this is in the process of modification. It might be desirable to consider whether the figures given by schools on form 7(i) are always realistic in relation to the number of children 'weak in English'. These assessments are usually subjective and it is quite probable that objective assessments would show that a realistic figure would be much higher. The need for objective tests to assess proficiency in English is discussed at length in the DES publication *Potential and Progress in a Second Culture.*

This report by its careful compilation of factual material should provide valuable information to LEAs considering the provisions they make or plan to make in relation to their immigrant pupils. This is the first national survey, and certainly the most detailed, to appear since John Power's booklet *Immigrants in Schools* and certainly gives those involved in immigrant education no grounds for complacency.

P.S.

FILMS



Why Mathematics?—a new 30-minute colour film for 12–14 year olds and their teachers—will be on release from February 1972. The film seeks to interest young people of average ability who are showing little or no enthusiasm for the study of mathematics in school.

Why Mathematics? was filmed in and around a comprehensive school in the London Borough of Brent. The staff and pupils of the school are very much involved. No professional actors are used.

The film opens with a school ciné club looking for a new project. A teacher's suggestion that the film might be about mathematics meets with understandable opposition. From an unenthusiastic start the young people become involved in location work and discover how interesting and varied are the many branches and applications of mathematics.

They study the history of mathematics, its use in biology and art classes, its application in the work of the local water board, an insurance company, an aircraft factory, a recording studio. By relating mathematics to their needs and experiences, and to the everyday business of living, enthusiasm and confidence replace boredom, incomprehension and fear.

Teachers will find the film helpful in presenting mathematics to children as a vital activity: parents will find it explains some of the 'mysteries' of equations and abstractions.

16 mm optical prints may be obtained from mid-February 1972, on free loan, and sale, from Central Film Library, Government Building, Bromyard Avenue, London W3 7JB. Please quote catalogue number UK 2699 with your order.

Free leaflets on this and other DES films may be obtained from Miss A. Edwards, Information Division, Department of Education and Science, Curzon Street, London W1Y 8A.A.

In issue 21 of *Trends* we asked for people who had sponsored or produced films about aspects of education to get in touch with us. The response to this request was surprising—it was so small.

We heard that there is a film on the Leicestershire Community Colleges called *For the Community*. This is a 16 mm colour film with a running time of 35 minutes, and illustrates the work of one of the colleges. It was made for the Leicestershire Education Authority and is available for hire from Guild Sound and Vision Ltd.

The Devon Education Authority has made a film about the work of pre-school play groups called *Before School* and another entitled *One Summer Term*. This film is designed to show teachers on tra.n-ing courses the practical effects of what can be achieved by thoughtful planning, and to help them use materials imaginatively. The Moat Girls School, Leicestershire has made a film sponsored by the local Community Relations Council, on the work they are doing in integration at the school, which has 78 per cent immigrant pupils.

This film is lent by the school itself for a small fee.

Perhaps the most difficult area for filmmakers, amateur or professional, to embark on is health education. The South Staffordshire Medical Centre has made a film on drug abuse called *One Way Ticket* which is for use in secondary schools. Its running time is 23 minutes and it can be hired direct from the Centre.

These films were the ones we have heard about. We feel sure there are many others already existing or in production. If your school is making a film, or your Authority sponsoring one, we would very much like to hear about it.

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